January 6, 1958

PURCHASING

The Methods and News Magazine for Industrial Buyers

PURCHASING NOW PUBLISHED EVERY OTHER WEEK

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New Ideas, New Services for the P. A.

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Purchasing by Computer.....page 76
Automatic Order Writing.....page 81

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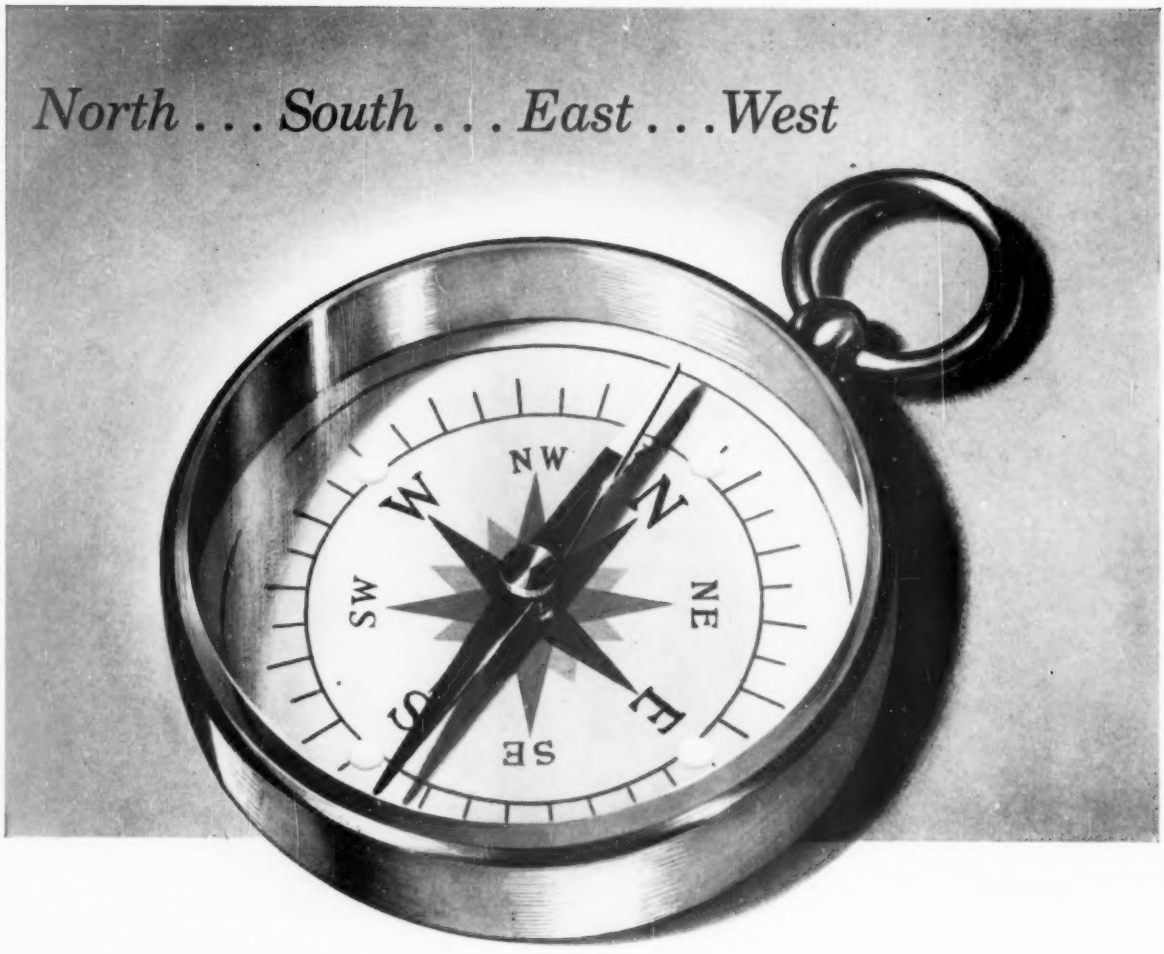

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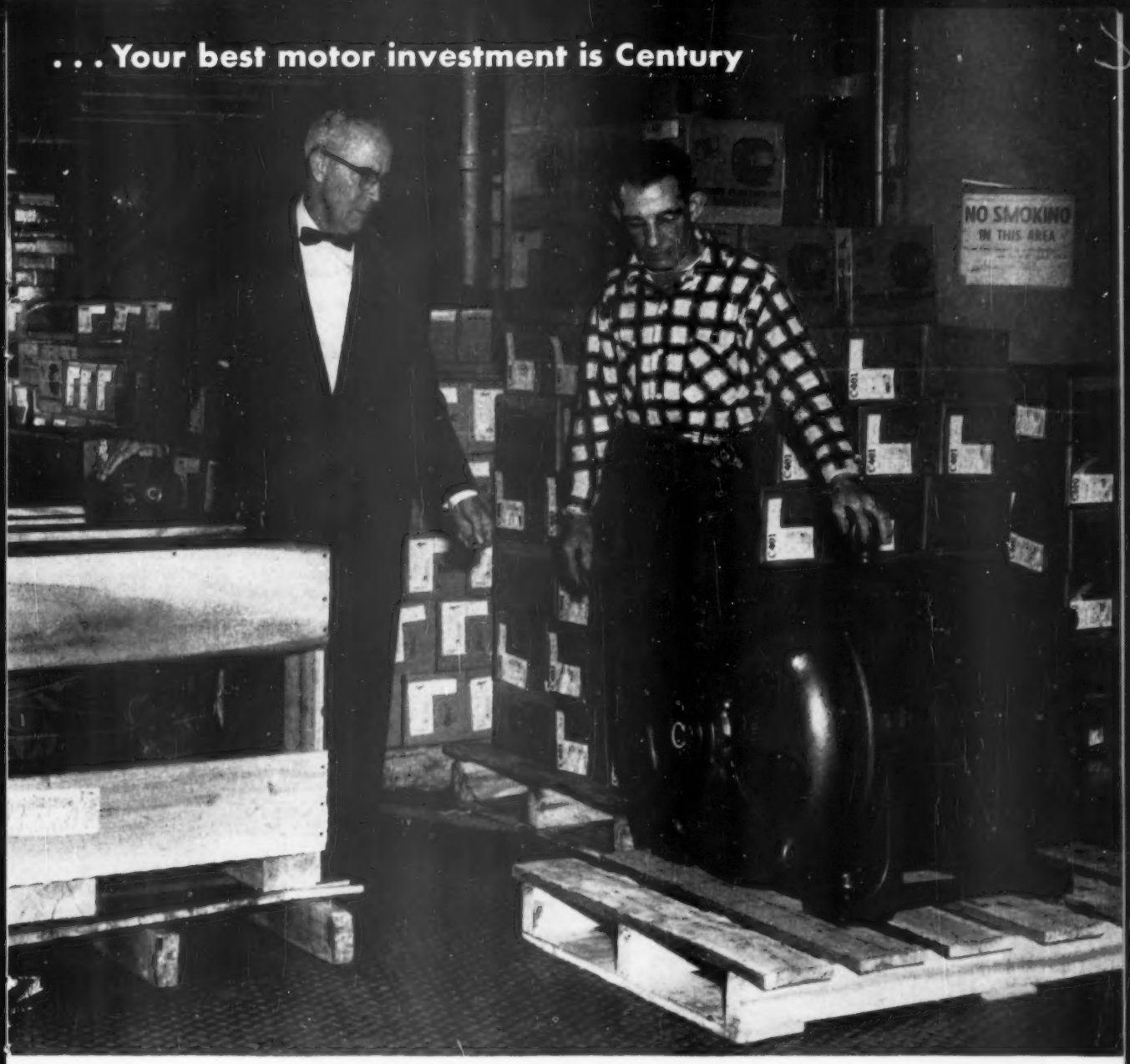

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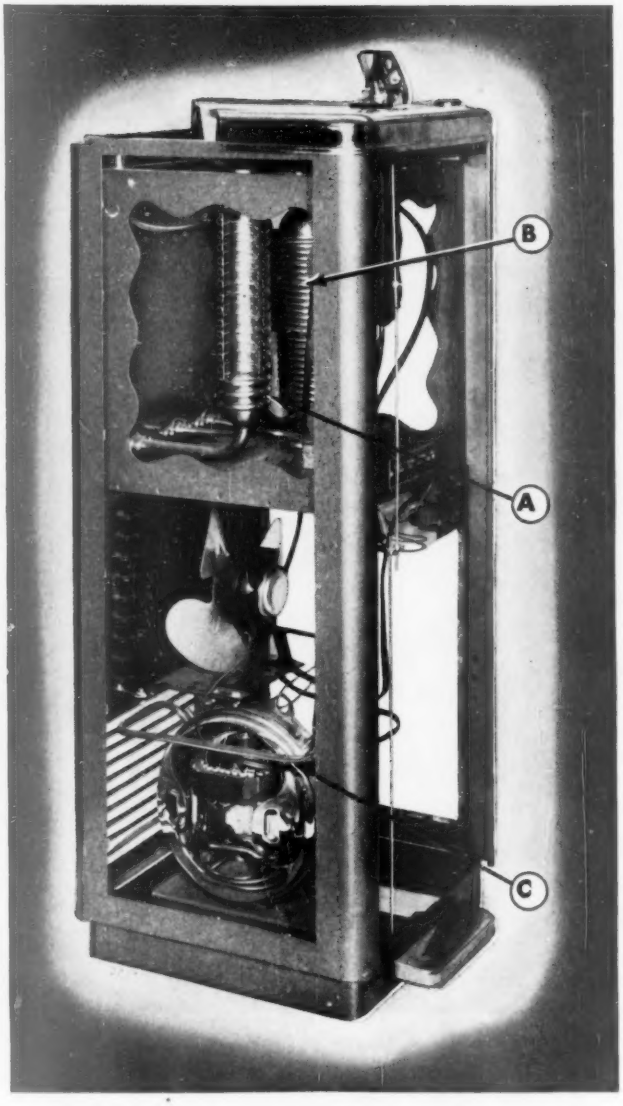


TEMPRITE DESIGNERS USE WOLVERINE TUBE

In the Temprite Products Corporation water cooler illustrated here, there are three individual applications of Wolverine copper tube:

A. The spun end heat exchanger and the tubing coiled around it (shown again at right below).

B. Wolverine commercial refrigeration copper tube is coiled around the cooler proper.

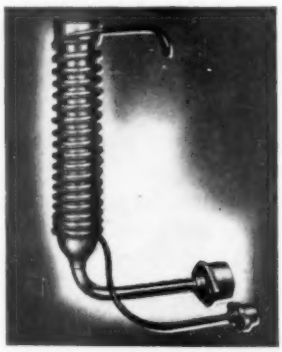
C. The capillary tubing from the condenser to the evaporator.

This Temprite application is an excellent example of the wide variety of tubular products manufactured by Wolverine Tube for American industry.

The Wolverine copper commercial refrigeration tube, for example, which carries the refrigerant that cools the water in the cooler, is of the highest quality available. It is clean, dry, consistent in temper and produced to the most exacting dimensions.

The spun end heat exchanger is the product of Wolverine's Copper Spun End Process† which eliminates many machining and assembly operations in turning out one-piece tubular parts with partially or fully closed end treatments. It takes the cold drain water and serves as an exchanger to pre-cool fresh water coming into the cooler.

In Wolverine Capilator®, Temprite design engineers utilized a capillary tubing manufactured expressly for precision control in the metering of liquids and gases. *Capilator is held to such close tolerances that it can be produced to meet customers' stated flow requirements.* It does exactly this for Temprite's quality cooler line which is manufactured at Temprite's plant in Birmingham, Michigan.



Products such as these are the result of Wolverine's Tubemanship program. Your company, too, can benefit from Wolverine's experience, research and sound engineering. For complete information about Wolverine products and services write for your copy of the Wolverine General Products Catalog.

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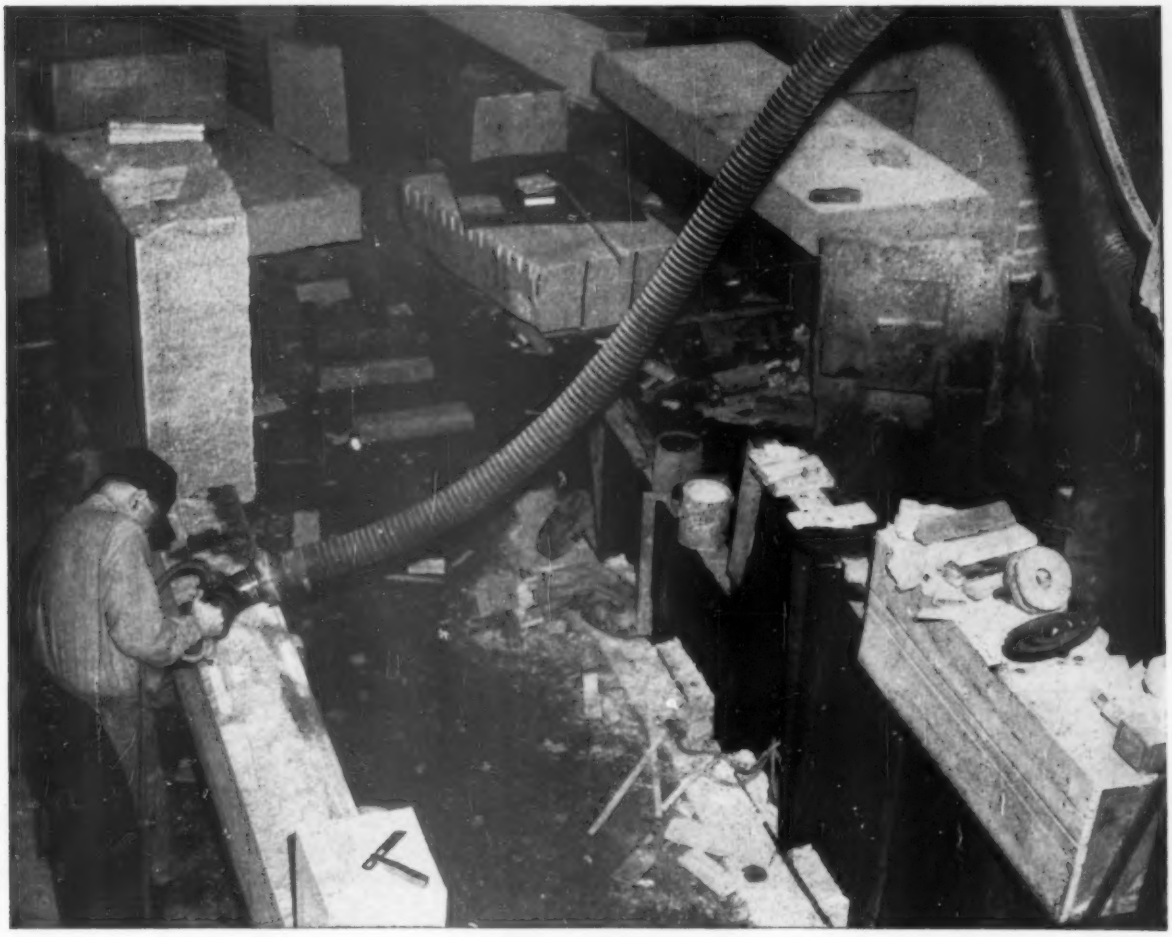
B.F.Goodrich report:



Hose swallows chips off the granite block

B. F. Goodrich improvements in rubber brought extra savings

Problem: That workman is cutting and finishing a granite block for a building front. As he chisels and grinds, the chips and dust are collected by the hose and carried away. Fine, except that the company was throwing hose away every year or so. The sharp, destructive granite chips wore holes through every kind of rubber hose tried.

What was done: A B.F.Goodrich man heard about the trouble, and recommended a hose, specially developed by B.F.Goodrich to stand this rough treatment. It is made with a special lining of the toughest, wear-resisting rubber known. It is so tough that, on many jobs, this rubber outlasts the hardest steel 10 to 1.

Savings: The B.F.Goodrich suction hose was tried. It has now given more than 5½ years' service, and shows no signs of wearing out. In fact, the plant engineer says he expects several more years' use from the hose, and he's replacing all other brands with B.F.Goodrich.

Extra benefits: In addition to making this hose stand more abuse, B. F. Goodrich engineers have also made it flexible, easy to handle. A coil of round steel wire, buried in the hose, keeps it from crushing, kinking or collapsing.

Where to buy: Your B.F.Goodrich distributor has exact specifications for the B.F.Goodrich hose described here. And, as a factory-trained specialist in rubber products, he *can* answer your questions about *all* the rubber products B.F.Goodrich makes for industry. *B. F. Goodrich Industrial Products Co., Dept. M-256, Akron 18, Ohio.*

B.F.Goodrich

INDUSTRIAL PRODUCTS

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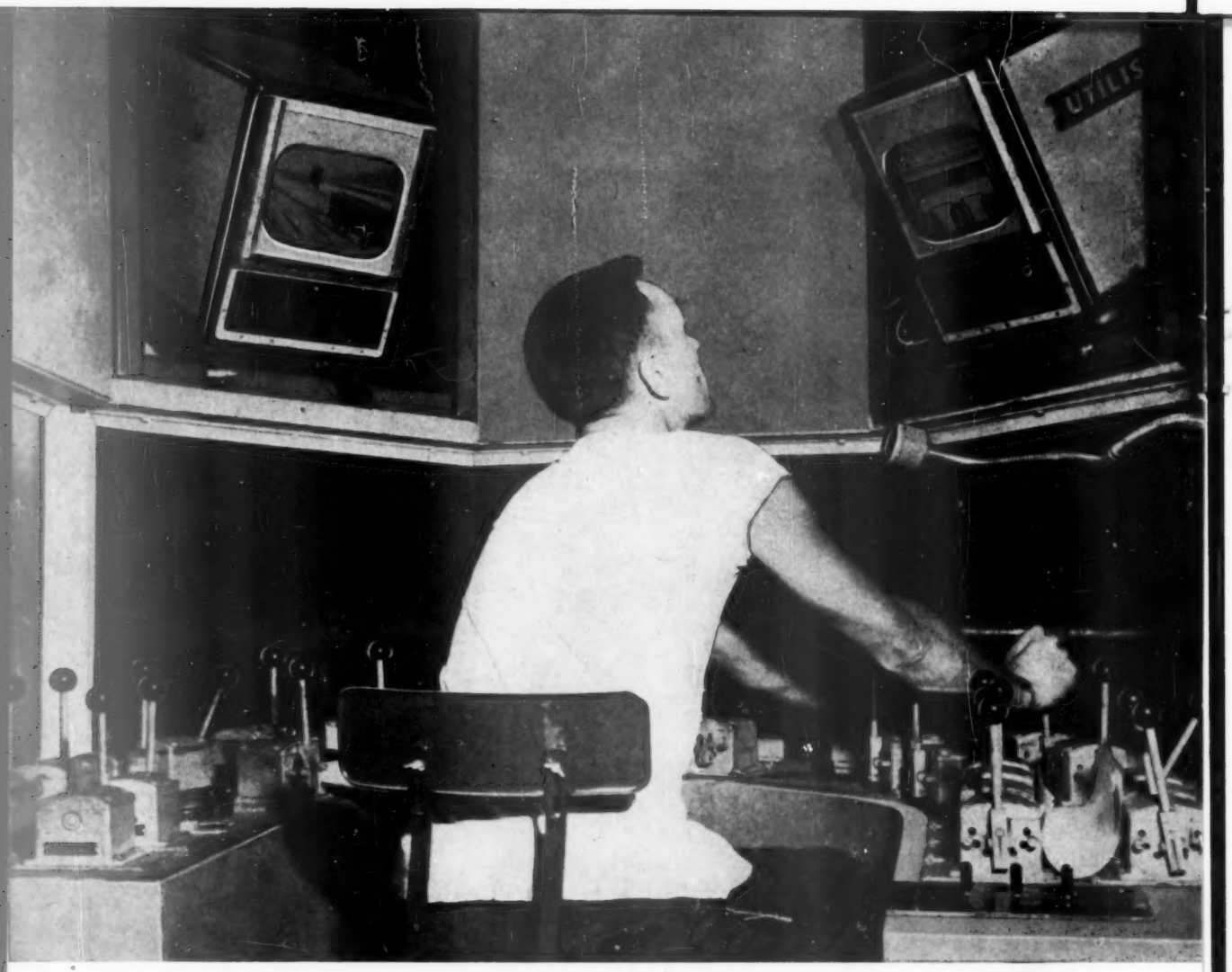

There's more to ITV than meets the eye

The magic of television offers a valuable new tool to American industry, institutions, transportation and utilities. In operation, industrial television (ITV) is simplicity itself. However, the assembly of all the equipment needed for a complete installation—and that's where Graybar enters the picture—has more to it than meets the eye.

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We have compiled a brand new 56-page catalog which contains descriptions and data on the equipment needed for an industrial television system. We will be more than glad to send to any firm located in the U.S. a copy of this catalog. No cost or obligation, of course,—simply write us on your company letterhead. 618-177

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PURCHASING

The Methods and News Magazine For Industrial Buyers

JANUARY 6, 1958
Volume 44, No. 1

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RAY RICHARDS, *Publisher*

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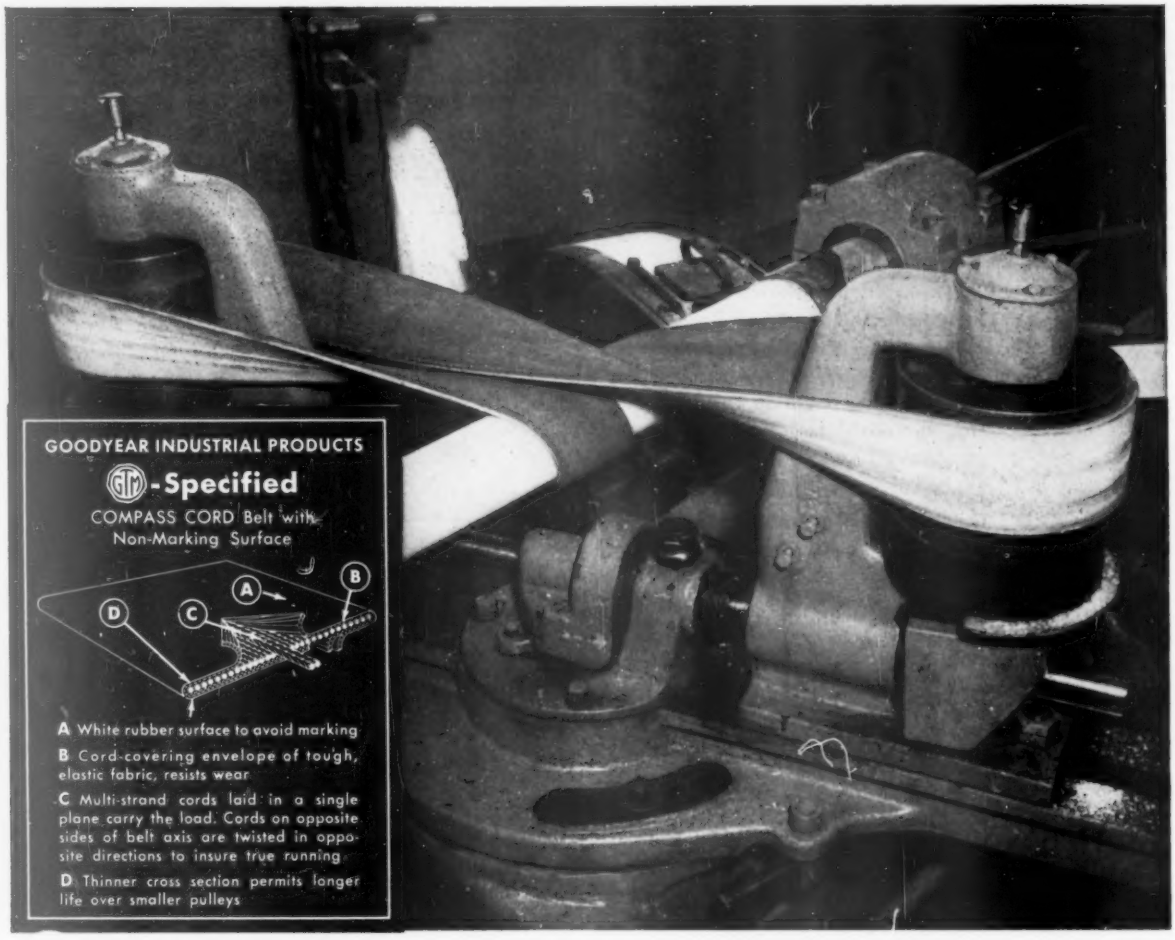
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COMPASS CORD Belt with Non-Marking Surface
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C
D
A White rubber surface to avoid marking
B Cord-covering envelope of tough, elastic fabric, resists wear
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D Thinner cross section permits longer life over smaller pulleys

Beats old belt by a clean 800%

An expensive custom-built belt was first choice for the tough, twisting, quarter-turn drive on this tube winder. But it left smudging marks on the cylindrical containers the machine turns out. And within six months that belt gave out entirely.

Then the G.T.M.—Goodyear Technical Man—offered his solution: A COMPASS CORD Belt engineered to shrug off twisting strains—and with one side covered with non-marking white rubber.

At last check, the G.T.M.'s belt had handled its tough job for 4 solid years. It's never left a mark on a single container. And it's still going strong!

Little wonder the G.T.M. is called in to solve so many tough industrial rubber problems. Remember – you can always reach him *in a hurry* by contacting your Goodyear Distributor or writing:

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IT'S SMART TO DO BUSINESS *with your Goodyear Distributor. He can give you fast, dependable service on Hose, V-Belts, Flat Belts and many other industrial rubber and nonrubber supplies. Look for him in the Yellow Pages under "Rubber Goods" or "Rubber Products."*

Compass—T. M. The Goodyear Tire & Rubber Company, Akron, Ohio

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Pulse of Business

'58 will be hard On P.A.'s

FOR P.A.'s 1958 will be an exceptionally difficult year. As it stands now, the economic outlook is this: continuation of the current business slump (and it will get worse) through mid-third quarter of '58. Then a rebound. Big test for purchasing agents will be calling the turning point.

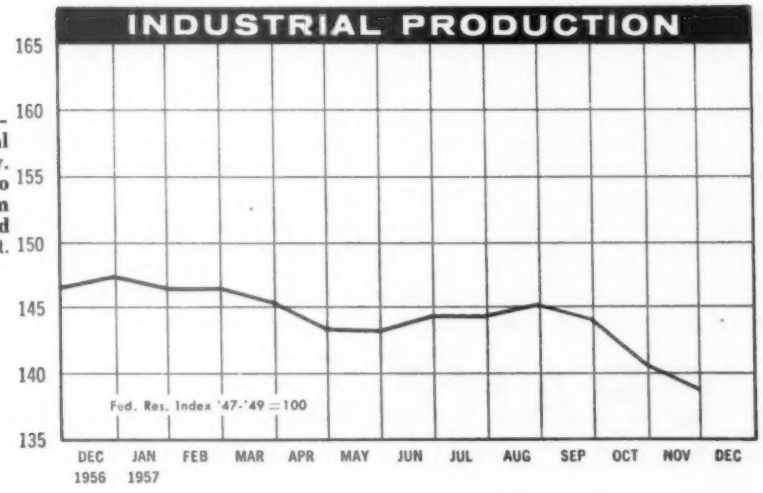
It's too early to try to pinpoint when the economy will shift from mild recession to recovery, but as a broad guide here is PURCHASING Magazine's analysis of what will happen to business during '58. The predictions are based on advice of leading economists, surveys of purchasing agents, information supplied by government officials and businessmen, and PURCHASING Magazine's own evaluation of the key factors in the economy:

Predictions on the Business Outlook

Gross National Product (value of goods and services): At the end of 1957, GNP was hovering around a $440 billion per year rate. During the first half of this year it may dip as low as $437 billion and then bounce back to $440 billion. Over-all, GNP in '58 will be at a higher rate than last year.

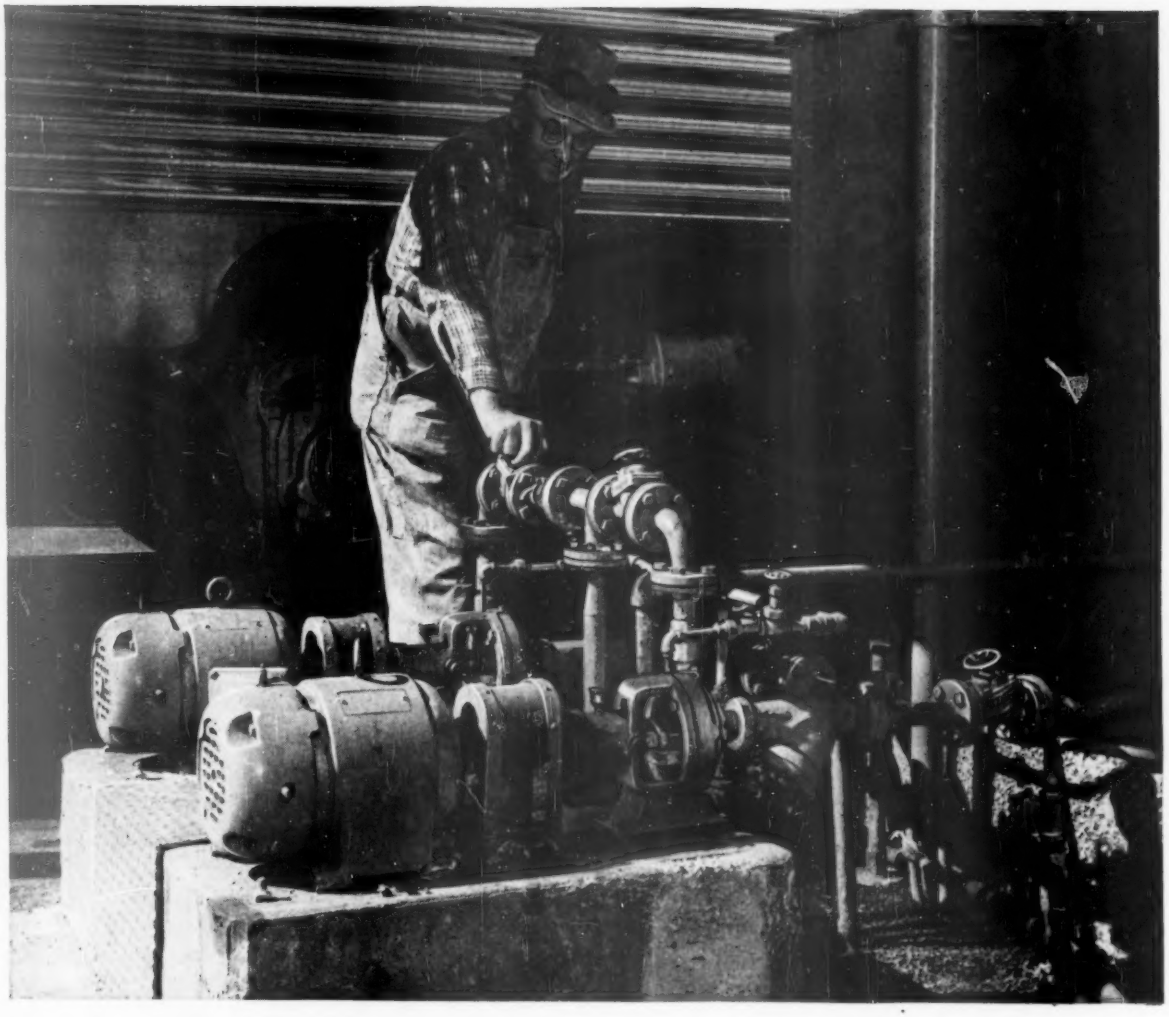
Industrial Production: Latest monthly report from the government shows the Federal Reserve Board's industrial production index down to 139 (adjusted), the lowest it has been since the steel strike in July '56. With the short term outlook for even slower business, the index will go lower, might hit 135 before the slump is over.

New Plant and Equipment: This is one of the keys to the current slump. Private investment in new plant and equipment has been one of the main supports of the economy in the last few years. Now it's tapering off. Outlook for this year is for a drop of about



The third successive decline of the Industrial Production Index in Nov. to 139 was equivalent to a 3 per cent drop from the August figure and two points less than Oct.

How to cut costs with Crane valves



30,660 operations on tough corrosive— and not a penny for maintenance

This case history may give you an idea how to save money in your own plant.

The man above is operating Crane 1-inch diaphragm valves on lines to a railroad car washer, used by the Santa Fe Railroad in its Los Angeles yards.

These are Crane No. 1631 valves with neoprene diaphragm and disc insert, and with 18-8 SMo bodies. Handling an acidic cleaning solution, these valves have been operated 12 times a day, 365 days a year for over 7 years. Yet despite the corrosive fluid, despite the long period of frequent operation, none of these Crane valves has leaked . . . none has had a diaphragm rupture . . . none has required a penny's worth of maintenance.

This is another example of how Crane research and product design help industry avoid costly valve maintenance. For information on any valve application, call in your Crane Representative.

YOU'LL WANT THIS Crane Folder AD-1942 on packless diaphragm valves. Ask your Crane Representative for a copy, or write to Crane Co. at address below.

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5 per cent compared with last year. With capital outlays in '57 estimated at slightly more than $37 billion, this means that during 1958 business and industry will spend slightly over $35 billion on new plant and equipment. Cutback will be severest in the durable goods manufacturing industries.

P.A.'s Get the Inventory Pill

Inventories: Were dropping gradually in the last quarter of '57, will continue to do so through first half '58 and probably longer. This means hard work for P.A.'s. They'll be told to keep the cupboard as bare as possible but not to run out of anything.

Sales: Will continue at a high level, outside chance they'll even top '57. This is not as encouraging as it might seem, however. Dollar sales volume will stay high partly because of rising prices. Also, several billions in sales may well come from reductions in inventories rather than new production.

Look for Gains in Construction

Construction: F. W. Dodge estimates contract awards in '58 will total $33.8 billion—a 5 per cent gain over '57. Part of the increase will reflect higher building costs—the rest to the belief that increased home building and government projects will more than offset declines in industrial construction.

Auto Industry: Will be affected by the slump. It looks like a 5.5 million car year compared with '57's near 6 million level.

Steel: Still suffering from the inventory cutback bug as users continue to live off stocks. No strengthening in steel is expected until the fall when the inventory problem will probably have worked itself out. Result: '58 production will be around 109 million tons compared with 113 million tons in '57.

Strike Possibilities A Definite Threat

Labor: Really tough to figure. This could be a strike year. Management will be harder to deal with than in the past because of the profit squeeze, and since business isn't booming a strike won't hurt as much. With the workweek declining and unemployment rising the labor chiefs may feel obligated to make a strong drive for higher pay.

If major strikes do develop, they could have the effect of straightening out the economic slump more quickly. It would mean in effect a deeper, more painful but shorter recession.

Main pitch labor will give is need for pay increases to boost purchasing power as a means of bolstering the economy. Walter Reuther is expected to ask for premium pay for work over 32 hours per week (it's now on a 40 hour basis). Settlement might be for premium pay at 36 or 38 hours.

Most contract settlements in '58 will probably be for increases of about 8¢ an hour.

BRIDGEPORT BRASS
COPPER ALLOY BULLETIN

Getting More For Your Metal Dollars with Bridgeport High I. Q. Alloys

VALUE ANALYSIS EDITION

NEW PRECISION-ROLLED BRASS STRIP CUTS PRODUCTION COSTS

One of Bridgeport's new high-speed Sendzimir Rolling Mills now in operation in our brass mills.

Brass, copper or bronze strip, now coming off Bridgeport's new Sendzimir Rolling Mills can help you reduce production costs in several ways.

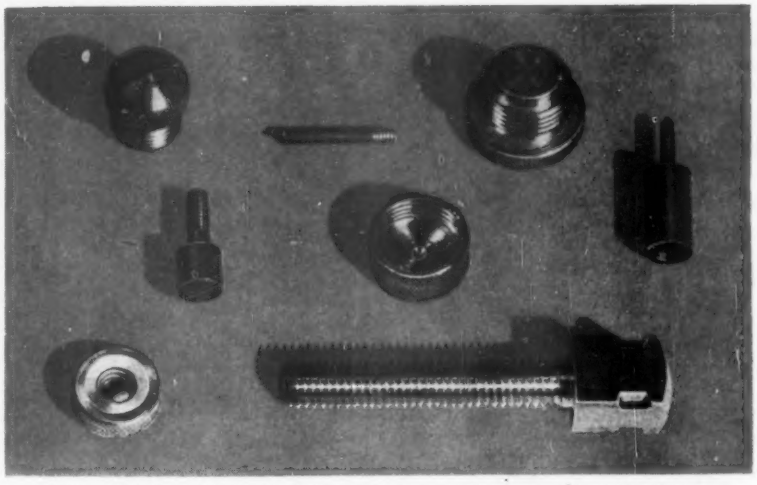
Closer Gauge Tolerances—This new brass strip is held to extremely close tolerances; you can use tighter specifications and get the *exact* thickness you need with minimum variations. And its remarkable uniformity of gauge and mechanical properties from edge to edge and from end to end make possible higher production rates and lower costs.

Beautiful Finish—The smooth lustrous finish of Bridgeport's Sendzimir Rolled Strip, which takes polished and plated finishes better, reduces finishing costs and improves product appearance at no additional cost.

Longer Length Coils—This brass, copper and bronze strip is available in economical long length coils that mean faster production and fewer work stoppages.

Bridgeport's new continuous annealing and cleaning machine operating in conjunction with the Sendzimir mills insures clean, bright metal of the exact temper you need. Use these advantages in the value analysis of both your present products and new ones. For complete information on brass, copper and bronze strip, call your nearest Bridgeport Sales Office.

How Materials Standardization Can Save Money in Buying Brass and Copper Alloys



With only slight modifications in design, production or performance needs, widely different parts can often be made of the same brass alloy with definite savings in materials costs.

One important advantage of brass and copper alloys is the wide range of properties they offer. For instance, minor changes in the alloy composition will produce marked changes in machinability, hot and cold working properties, strength, fatigue resistance, corrosion resistance, etc. Likewise, rolling, annealing, drawing and other mill operations can change the characteristics of a metal. For these reasons, it pays to consider the advantages of standardizing on specific copper-base alloys to better satisfy all your metals requirements.

How To Standardize

First, consider using copper-base alloys in place of steel, aluminum and other metals to improve production or to lower production costs.

They offer superior corrosion resistance, and some silicon bronzes have the strength and toughness of mild steel. Solid brass, likewise, has superior quality, beauty, luster and life than plated or stainless steel and is easier to fabricate.

Second, standardize on fewer copper-base alloys. For example, a turned part made of tellurium (free-cutting) copper can often be produced 20% to 30% faster than electrolytic copper yet still provide essentially the same electrical characteristics.

The advantages of standardizing are many. You can simplify inventory problems, combine orders to obtain maximum quantity discounts, and eliminate duplicate material specifications. These are just a few of the savings.

Technical Help From Bridgeport

You can get valuable help in analyzing your requirements from your Bridgeport Salesman. He'll be glad to call in Bridgeport's Technical Service to give you experienced advice on the performance and characteristics of Bridgeport's wide range of copper-base alloys. Just call your nearest Bridgeport Sales Office.

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In Canada: Noranda Copper and Brass Limited, Montreal

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The P.A.'s Outlook

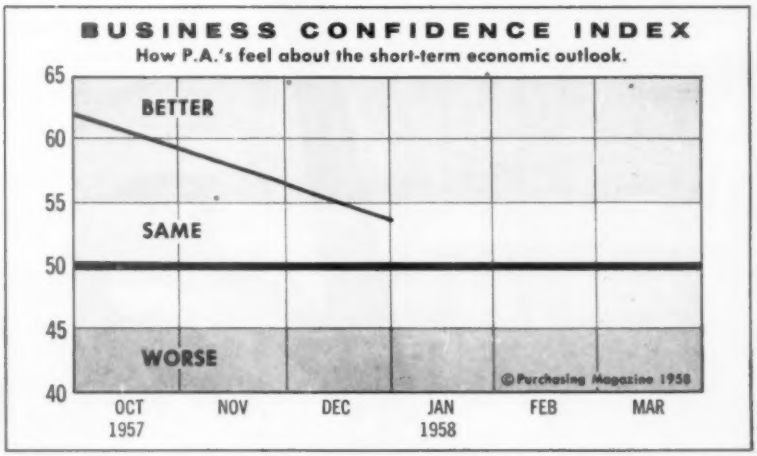
- **Business Confidence Index Dips Again**
- **P.A.'s See No Change Through March**
- **Only 2% Expect Sharp Downturn**

PURCHASING MAGAZINE'S Business Confidence Index—based on the opinions of hundreds of purchasing agents about economic conditions for the next three months — fell again in December to 54.1 and entered the "same" category for the first time (see cut).

The index, a sensitive barometer of future business activity because of the unique position P.A.'s hold in gauging market and price trends, has dropped a total of 7.9 points in the last three months, indicating the increasing pessimism of purchasing executives. Their current combined opinion: industrial activity through March 1958 will be virtually equivalent to that in December 1957.

The business confidence index has not yet declined below 50 however, indicating that P.A.'s are still slightly optimistic about the short-term economic outlook. If, however, the line does fall appreciably below that number in the next few months, it might portend an extension of the predicted business slump into the second half of 1958.

In the actual breakdown of the December figures, 35 percent of the P.A.'s thought business conditions would be "slightly better," 32.6 percent felt they would be the "same" while 25 percent predicted "slightly worse" conditions. Slightly over 5 percent looked for "much better" business while only 2 percent expect it to get "much worse."



- **Gloom Is Main Note In N.A.P.A. Report**

HIGHER PRICES for corrugated paper, cotton, some electrical equipment and borax. Lower prices for copper, lead, steel scrap, tin, crude rubber and gasoline.

That's the composite opinion on current buying revealed in the December report of the National Association of Purchasing Agents' business survey committee. The P.A.'s report there are no important commodities in short supply and that careful buying can produce price advantages.

The committee, however, noted several gloomy factors in its last report for 1957. The 43 percent of purchasing agents reporting poorer new order bookings was the highest percentage for this category since January 1954. The adjustment of 1954 was also the last time there were as many as the current 41 percent who noted lower inventories. And 49 percent said employment was down, the highest percentage to do so since the 1949 recession.

Most of the purchasing executives stated that some major strikes are inevitable in the last half of 1958, which leads them to temper their enthusiasm for a pickup in that period. In addition the purchasing executives noted forward buying of production items, MRO supplies and capital equipment are all on a shorter-term basis.

- **Chicago P.A.'s Expect Stable Prices**

"THERE IS LITTLE evidence to indicate that price movement will be significant in either direction over the next few months, says the business survey committee of the Purchasing Agents Association of Chicago.

But the committee added "continued high costs will likely bar any radical decline in prices generally." It said also "higher cost absorption, stiffer competition and lower operating levels are having a noticeable effect on profits," which "affords little encouragement to an early upsurge in expenditures for capital purposes."

The Chicago P.A.'s reported "most industries are undergoing readjustments, modifying production schedules to more closely meet current demand." Both inventories and backlogs dropped considerably.

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Here's the heavy-duty power stretcher you'd expect from Signode—

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Pulse of Business

Business Trends

- **New Year Starts With Economy on Downbeat**
- **Government May Act To Cushion Slump**

AS THE NEW YEAR started almost all the significant economic indicators were pointing down. Missing was even the customary start-of-the-year euphoria which often has company presidents predicting record sales for their own firms, even though it's general knowledge that the industry as a whole is headed for trouble. In Detroit, for example, the usually sanguine automotive tub-thumpers were playing their annual "how many cars" game conservatively.

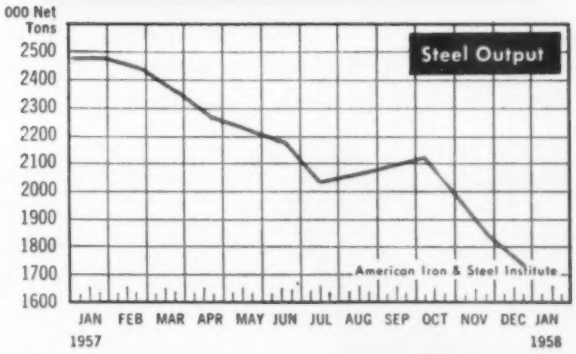
Pinpointing the Soft Spots

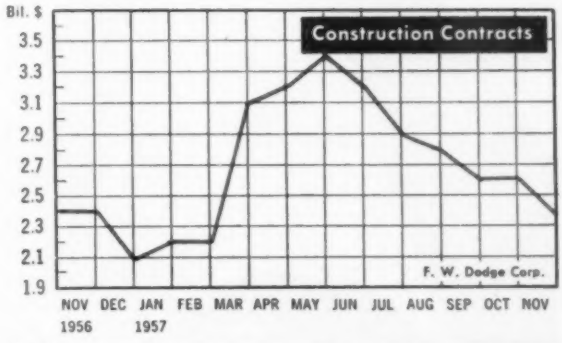
Some signposts of the slump: Steel production hit its lowest rate (except for strike periods) in eight years. Unemployment at 3.2 million was up markedly and due to continue climbing. In line with higher unemployment, the shorter workweek (39.2 hours) and decreased overtime pay, personal income was down to a $345.4 billion per year rate, the lowest it's been since June. And the manufacturing production worker payroll index at 159.5 ('47-'49=100) was at its lowest point since the July '56 steel strike.

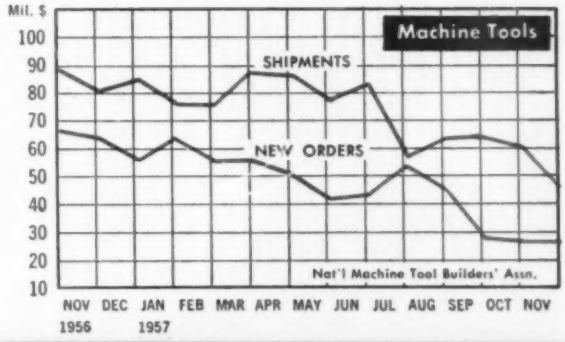
Construction—probably headed for another record year—dropped off in November. Machine tools, often a lead indicator economically, continued in the doldrums with new orders less than half what they were a year ago. Order backlogs have been sliced to 3.3 months compared with a 6-months level a year ago.

(Turn Page)

PRODUCTION







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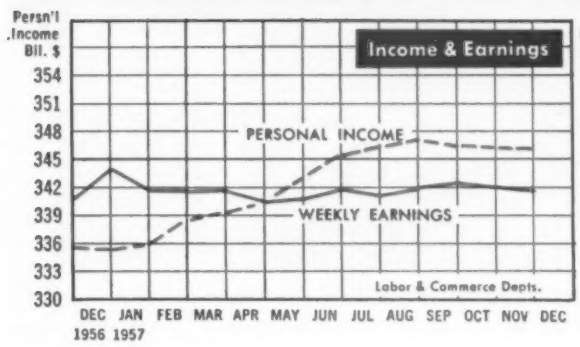

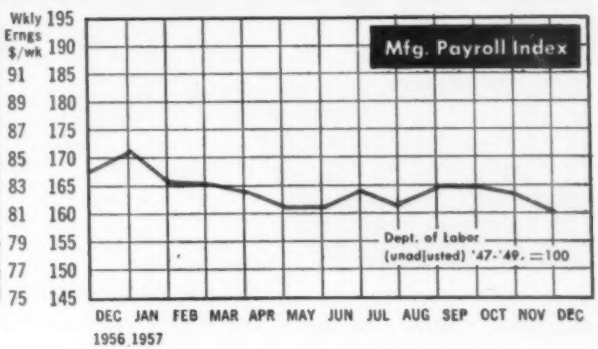

New location for a tradition

The address is 30 West Monroe Street in Chicago. It's the location of the brand new Inland Steel Building, open for business this month. Here, you can get prompt answers to your questions about steel . . . deliveries, quality, application. The men who work here have the answers and authority to act, and are anxious, as usual, to help you. The surroundings are new but the desire to serve the needs of midwestern steel users remains the same.

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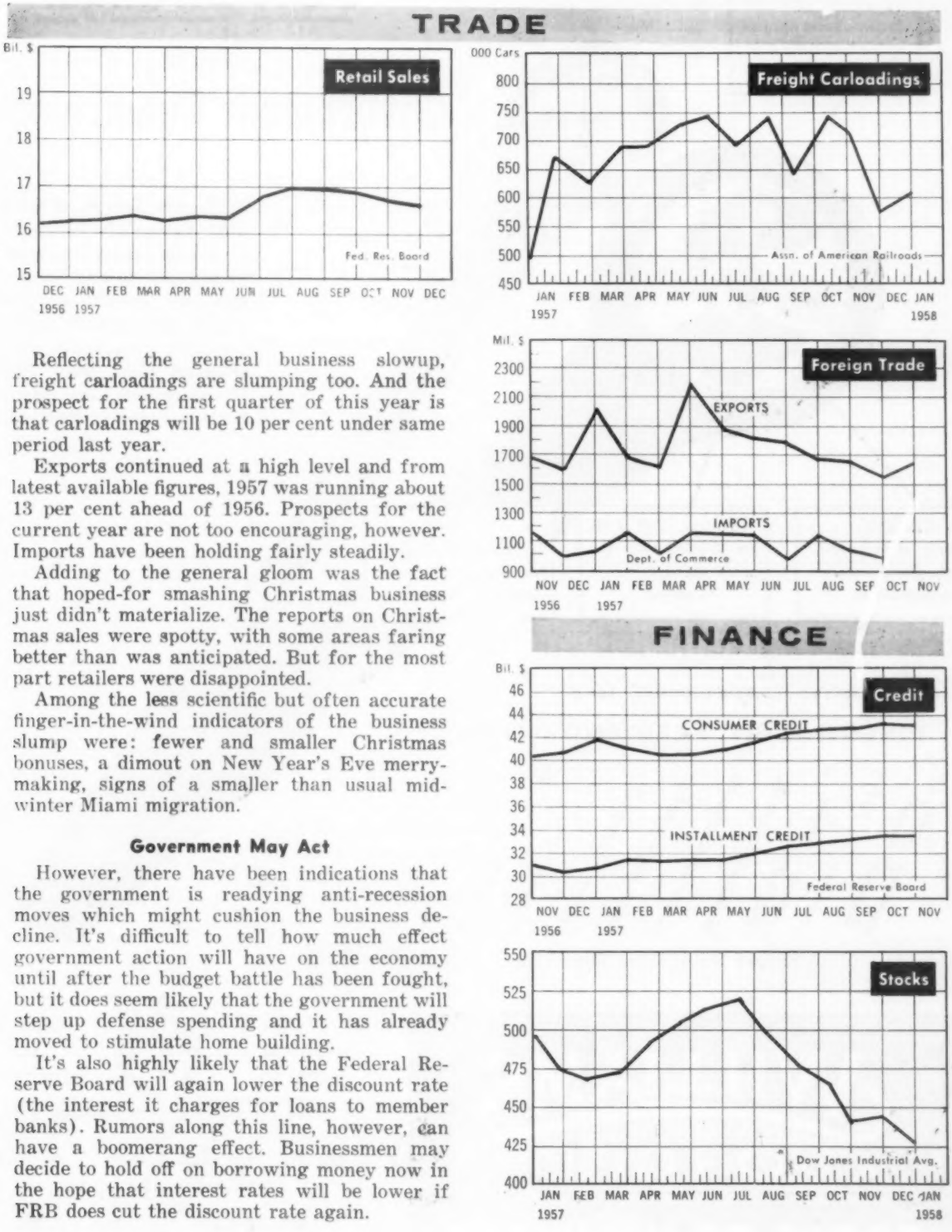
Pulse of Business

Business Trends



Reflecting the general business slowup, freight carloadings are slumping too. And the prospect for the first quarter of this year is that carloadings will be 10 per cent under same period last year.

Exports continued at a high level and from latest available figures, 1957 was running about 13 per cent ahead of 1956. Prospects for the current year are not too encouraging, however. Imports have been holding fairly steadily.

Adding to the general gloom was the fact that hoped-for smashing Christmas business just didn't materialize. The reports on Christmas sales were spotty, with some areas faring better than was anticipated. But for the most part retailers were disappointed.

Among the less scientific but often accurate finger-in-the-wind indicators of the business slump were: fewer and smaller Christmas bonuses, a dimout on New Year's Eve merrymaking, signs of a smaller than usual midwinter Miami migration.

Government May Act

However, there have been indications that the government is readying anti-recession moves which might cushion the business decline. It's difficult to tell how much effect government action will have on the economy until after the budget battle has been fought, but it does seem likely that the government will step up defense spending and it has already moved to stimulate home building.

It's also highly likely that the Federal Reserve Board will again lower the discount rate (the interest it charges for loans to member banks). Rumors along this line, however, can have a boomerang effect. Businessmen may decide to hold off on borrowing money now in the hope that interest rates will be lower if FRB does cut the discount rate again.

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41 TEETH give 82 tooth action; require less than 4½° to rotate nut.

STRESSES evenly distributed throughout entire mechanism.

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Price Trends

- **Wholesale Index Advances to 118**
- **Demand Slight for Copper, Scrap, Lead**

IN A MONTH when most indices and production totals were on the downgrade, the government's wholesale price index advanced .2 of a point in December to 118. The rise was sparked by farm products (up .4 to 91.9) and processed foods (up a point to 106.5).

Another December index on the up side: the Consumer Price Index which climbed to 121.6.

In the metals markets, increased buyer demand for copper has not yet appeared, despite the recent widely-publicized action of both domestic and foreign producers to curtail production. These production cuts, however, are not actually as important as they might first seem. For with new mines, new ore bodies, richer veins and increased automation, copper men are constantly increasing productivity while curtailing output in certain sectors. In 1957 alone, copper capacity was increased by 60,000 tons.

Aluminum Supply Up

Because of the fluctuation in copper prices in the last quarter of 1957, few metalworking companies that switched to aluminum show any signs of resuming the purchase of the red metal, even though the price of secondary aluminum firmed up slightly in December. The supply of aluminum, like copper, exceeds current demand, with even greater production capacity planned in 1958 (2-million tons versus an estimated 1,655,000 tons in 1957).

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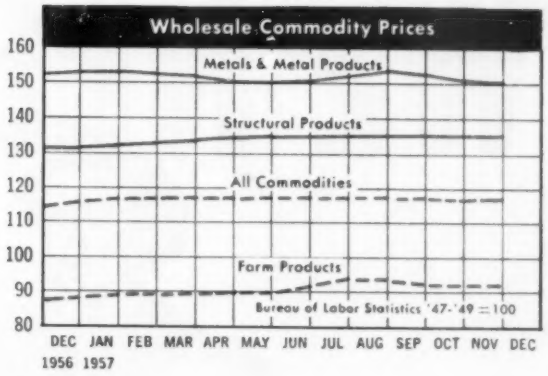

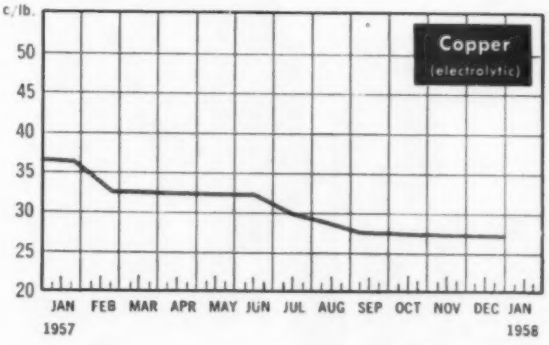

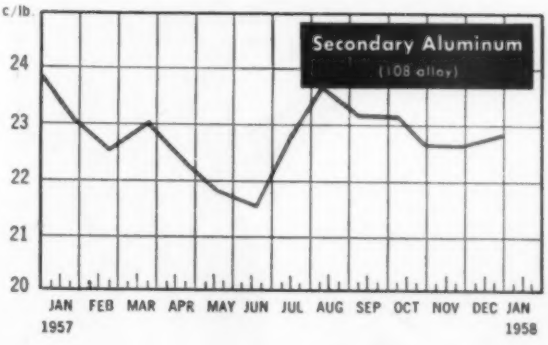

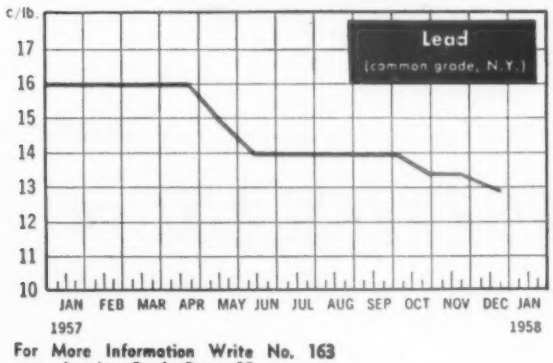

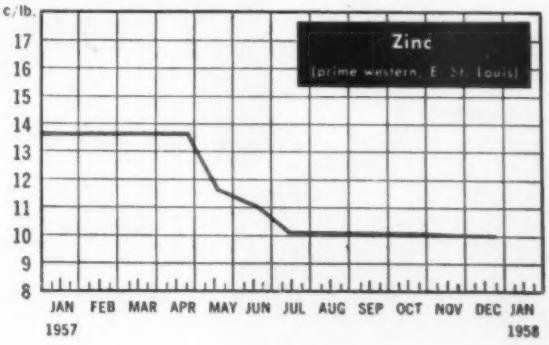

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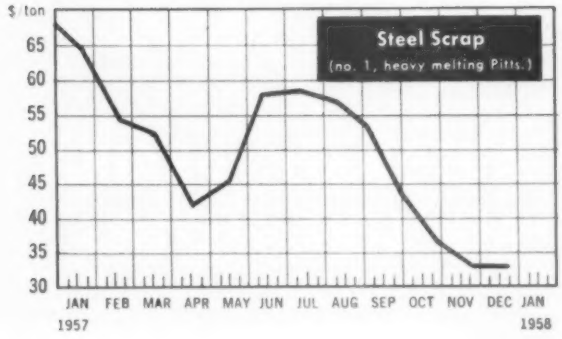
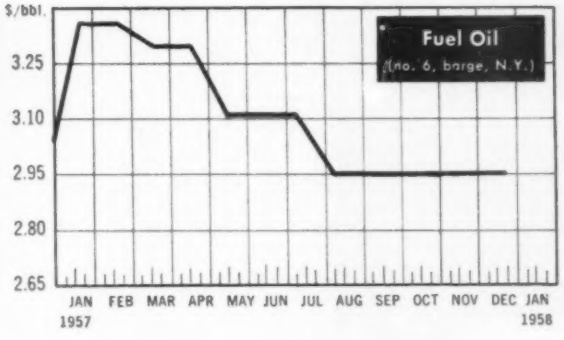
Pulse of Business

Price Trends

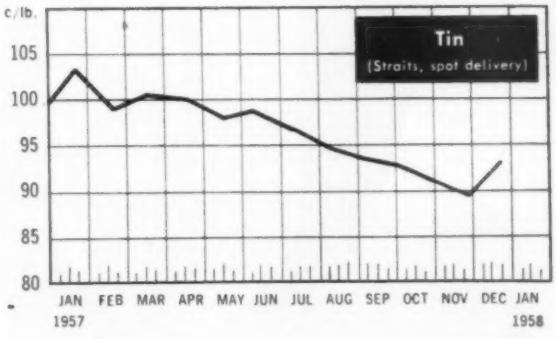


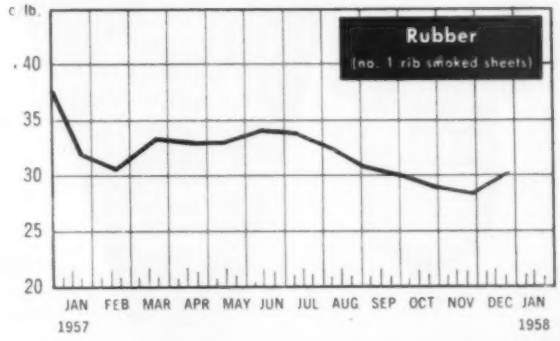


The brass industry is also continuing to slump. Operations in December were lower than in November and the outlook is for the slow pace to continue through at least the first quarter of 1958. Brass mill executives expect volume this year to be nearly 10 per cent below the '57 level.

Consumption of steel scrap—tied directly, of course, to primary production—appears to be stabilized, at least for the present, at the 1957 lows. In the next six months, steel men say, sales of scrap will be slow and quite unsteady.

Lead buying has shown no appreciable pick-up since the price went down a half cent early in December. And galvanizers have not been ordering their usual zinc supplies; the price of that metal may be in danger of weakening again.





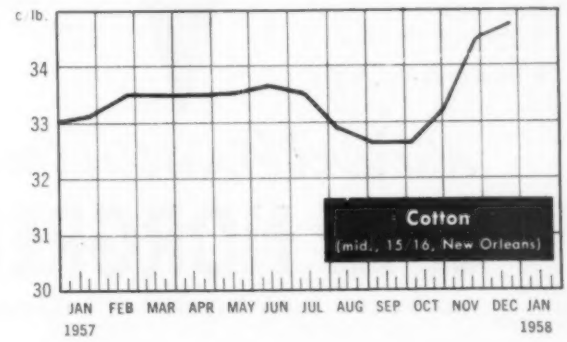
Tin Sales Spasmodic

Sales of tin were sporadic and lifeless around the end of the year with little activity either on the plus or minus side. However, current indications point to a resumption of fairly heavy trading this month.

Outlook for nickel in '58 is for increased production. It's expected that output this year will be about one per cent higher than the 250 million tons turned out in '57.

Greater production of titanium and magnesium are indicated for 1958 even though consumption of these specialized metals was down last year. Producers are hoping that the missile boom will create a sharply increased demand and make up for the aircraft cutback.

Petroleum men in the New York area are uneasy over the price of No. 6 fuel oil easing off. Open market trading has been light and fairly high discounts are reported by some trade sources.



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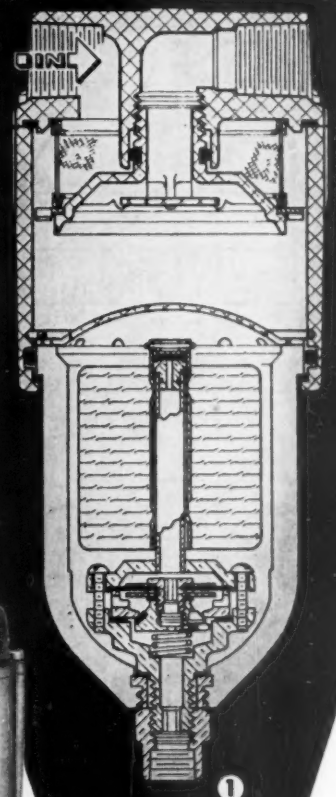

NOW—24 Models to choose from

- Transparent Bowls—¼", ⅜", ½", ¾", 1"
- Metal Bowls—¼", ⅜", ½"

1 MORE EFFICIENT WATER REMOVAL

2 WIDER OPERATING RANGE 5 psi to 250 psi, up to 200° F.

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You Get These Important Advantages:

- **More Efficient Water Removal**
  Greatly increased water removal efficiency—even at air flows 143% higher than ever before.
- **Operates Over Wider Pressure Range**
  Top efficiency at as low as 5 psi for all models and as high as 250 psi for metal bowl type.
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  New metal bowl models in ¼", ⅜" and ½" sizes extend temperature range to 200° F.
- **Withstand Rougher Usage**
  Metal bowl models are ideal for applications likely to get rough usage.
- **Simplified Drain Mechanism**
  More efficient operation. Fewer parts.
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  Collected liquid is drained automatically—cannot return to air line. Drain operates as long as pressure is on the system.
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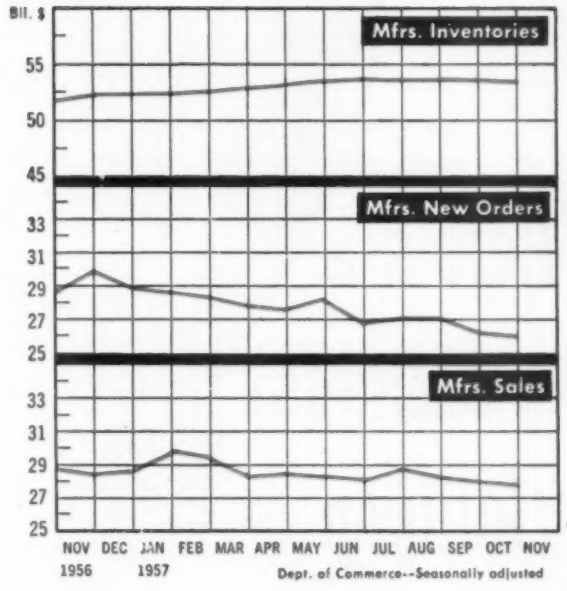
Sales, Inventories, Orders

- **Inventories Are Down**
- **Sales, Orders Off Too**

LATEST GOVERNMENT statistics finally give evidence that the inventory cutback is more than just talk. Decline in manufacturing inventories for the second month in a row provides the first statistical support to a trend P.A.'s have been aware of for some time.

On a seasonally adjusted basis, manufacturing inventories at the start of November totaled about $54,072,000,000. High for '57 was the $54,203,000,000 established in August. Though the change is slight, it may be the sign of the start of a real inventory reduction.

Also declining were manufacturers' sales, new orders, and unfilled orders. Both sales and new orders started downward in late summer while unfilled orders have been in a marked decline since January '57.



Manufacturers' Sales Seasonally Adjusted (Millions of Dollars)	1956		1957			
	September	October	July	August	September (r)	October (p)
All Manufacturing Industries	27,146	28,696	29,030	28,638	28,215	28,003
Durable-goods industries	13,449	14,393	14,573	14,297	14,132	13,943
Primary metal	2,334	2,551	2,447	2,362	2,182	2,220
Fabricated metal	1,440	1,548	1,605	1,520	1,547	1,539
Machinery	4,058	4,230	4,447	4,281	4,314	4,275
Transportation equipment	2,696	3,067	3,251	3,448	3,407	3,291
Lumber and furniture	1,122	1,065	957	925	940	928
Stone, clay, and glass	727	776	736	708	668	647
Nondurable-goods industries	13,697	14,303	14,457	14,341	14,083	14,060
Food and beverage	4,109	4,280	4,323	4,357	4,278	4,296
Tobacco	329	350	375	354	378	356
Textile	1,125	1,172	1,089	1,072	1,040	1,003
Paper	859	895	896	915	932	922
Chemical	1,875	1,979	2,008	2,008	1,951	2,008
Petroleum and coal	2,629	2,727	2,991	2,920	2,803	2,880
Rubber	461	477	514	514	481	n.a.
Manufacturers' Inventories Seasonally Adjusted (Millions of Dollars)						
All manufacturing industries	50,842	51,751	54,093	54,203	54,166	54,072
Durable-goods industries	29,451	30,232	31,696	31,742	31,820	31,744
Primary metal	3,687	3,824	4,245	4,326	4,344	4,344
Fabricated metal	3,002	3,127	3,146	3,151	3,123	3,101
Machinery	10,089	10,294	10,622	10,609	10,658	10,619
Transportation equipment	7,280	7,552	8,038	8,035	8,049	7,959
Lumber and furniture	1,870	1,892	1,857	1,872	1,877	1,887
Stone, clay and glass	1,129	1,148	1,239	1,210	1,251	1,279
Non-durable goods industries	21,391	21,519	22,397	22,461	22,346	22,328
Food and beverage	4,831	4,809	4,804	4,805	4,684	4,675
Tobacco	1,870	1,875	2,038	2,024	2,000	1,980
Textile	2,648	2,676	2,642	2,649	2,631	2,638
Paper	1,320	1,328	1,430	1,429	1,410	1,429
Chemical	3,504	3,558	3,728	3,737	3,741	3,718
Petroleum and coal	3,169	3,204	3,494	3,517	3,597	3,616
Rubber	1,038	1,044	1,045	1,074	1,074	n.a.
Manufacturers' New Orders Seasonally Adjusted (Millions of Dollars)						
All manufacturing industries	26,767	28,769	27,276	27,325	26,565	26,282
Durable-goods industries	13,042	14,312	13,005	13,160	12,519	12,350
Nondurable-goods industries	13,725	14,457	14,271	14,165	14,046	13,932

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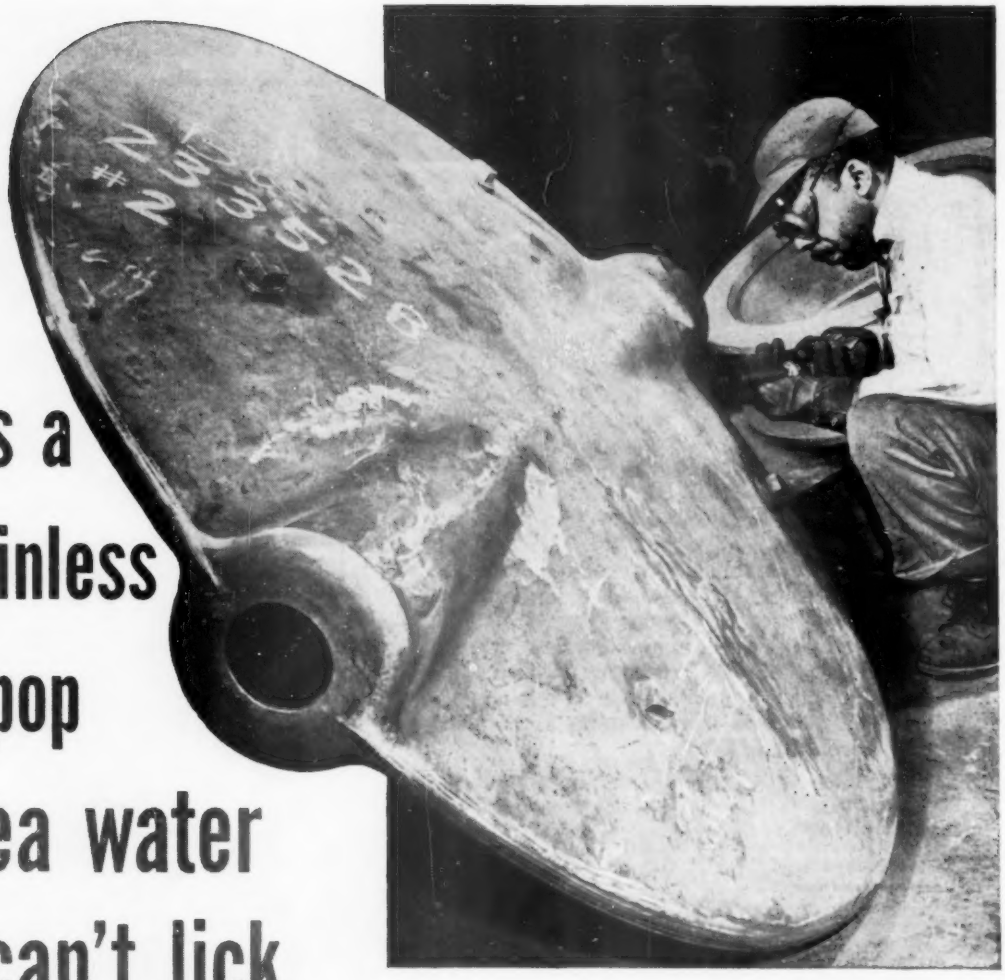

Here's a stainless lollipop sea water can't lick

This large (48″ dia., 1701 lbs.) and unusual stainless casting was fabricated by Allegheny Ludlum's Buffalo, N.Y. foundry. It is scheduled for service under the most severe operating conditions, functioning as a wafer valve disc at 25 psi pressure in sea water. Since long life and tight closing are essential in this application, corrosion resistant Type 304 Allegheny Stainless was specified.

Some unusual techniques were employed in the fabrication of this casting. Although the entire valve disc was cast as a single piece, its sides are hollow, with a skin only ¾″ thick. The center shaft was cast solid at the same time the side wings were cored, permitting the single piece, seamless part desired.

If you have a casting problem, or *any* problem that involves corrosion resistance, long life, resistance to wear and abrasion, call the Allegheny Ludlum Sales Office nearest you. An A-L Sales Engineer is ready to put his skills and those of the A-L Technical Staff promptly at your disposal, to serve your requirements from the largest and most complete line of stainless products on the market.

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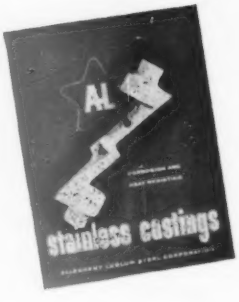

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Husky bearings in husky housings adjust immediately in any direction

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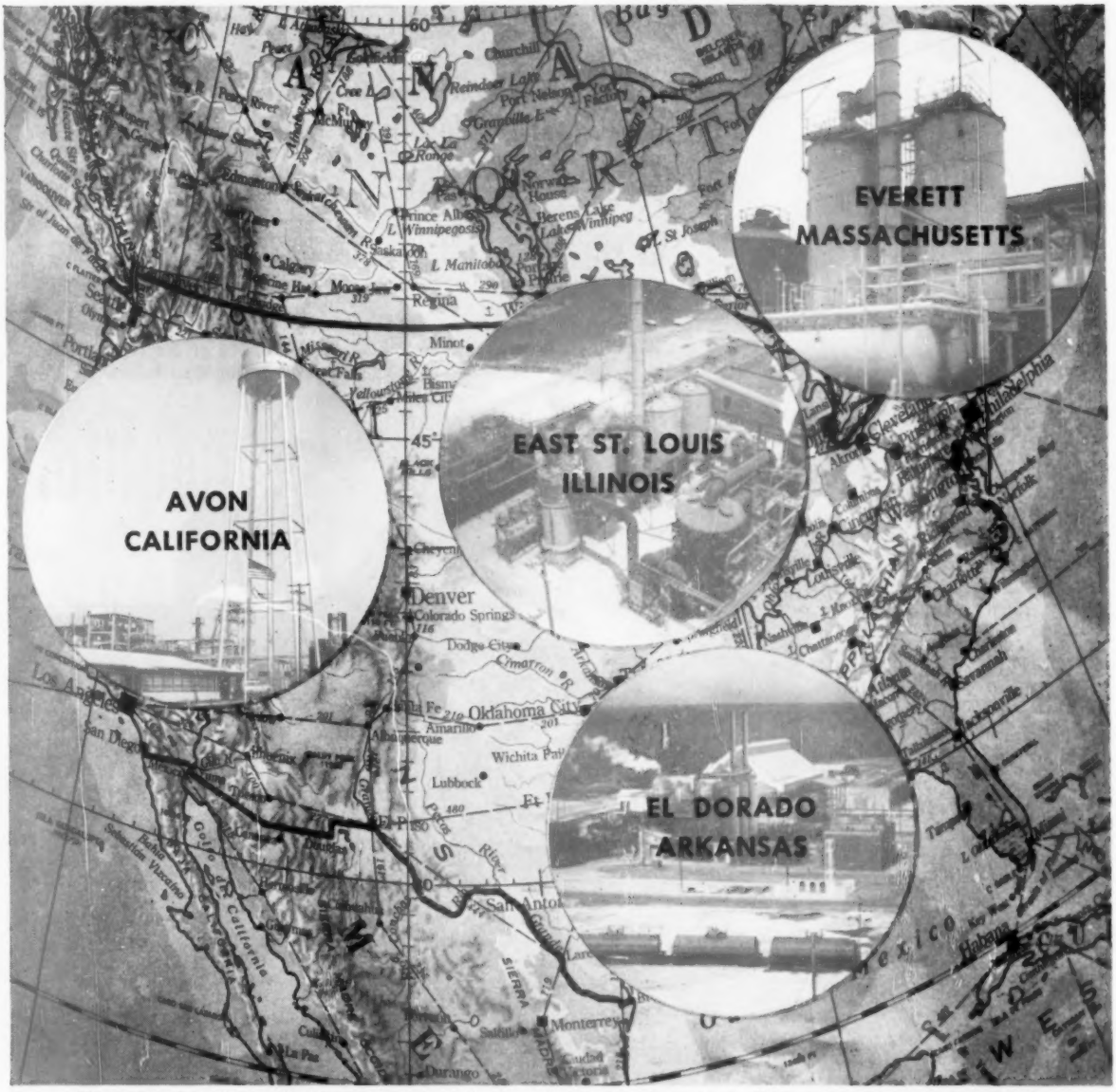
SULFURIC ACID FROM COAST TO COAST



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Washington Report

Business Forecast: Slump Will Be Slight; Price Rise Forecast

DIRECTION OF THE economy has been batted around—but consensus is that it is in a downward trend. "How long and how far?" are the issues in question.

For purchasing agents, downturns can become highly significant on inventory policy, price outlook and supplier relationships.

First, on industry plans, the outlook is for lower profit margins because industry sees competition becoming more intense—costs continuing up, but a compelling need to keep prices low to maintain position in the market.

Overall policies which have been suggested during such a cycle have been to cut costs by eliminating non-essentials, injecting economies by curbing waste, pruning expenditures which can be delayed, and developing cost-saving materials and components.

The government predicts that industry will be cutting back on new plant and equipment expenditures. Estimates are that cut will be five per cent in first quarter of this year (below last quarter of '57). This is the first such drop since the first quarter of '55.

Lower level of capital investment is not considered critical. Question is whether the lower level is just a breather—or spells out new trend, with industry becoming increasingly cautious.

Decreased investment spending has been an important factor in relieving demand for credit. Money has become increasingly available for commercial credit, home construction and business loans, as demands for capital expansion have moderated. In part,

Missile spending may not have much direct impact on the economy since much of it will be for research and engineering rather than materials.

the Federal Reserve Board's action in lowering the rediscount rate reflected a loosening of demand for credit.

Demand for commercial credit, which up until now has been held in leash by Government money policies, will get a better reception from lending institutions—but now borrowers will tend to be more cautious.

Dip Will Be Brief

While everybody sees a drop in business immediately ahead, it is also generally thought the reverses won't last long. There are normal correctives. In a decline, the natural consumption chews up more than is produced—but this can take time.

The attitude of overall confidence is largely based on the thinking that we have become in large part a managed economy—and the domestic political pressures as well as our world commitments won't permit a long drawn-out period of adjustment.

For example, the missile program is a must one step in the scramble to rebuild our military posture. As the Soviets push first into one area of development and then another, we will have to meet their advances with major efforts. This means large Government spending — deficit spending.

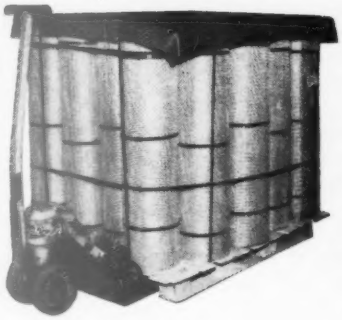
If too much of this Government spending for defense goes into research and development, and does not funnel back quickly enough to the pockets of the average consumer, the political pressures will mount for a tax cut that will increase consumer purchasing power.

Government Would Act Quickly

It still is unclear as to what combination of measures will be used to counter the drop in the economy, but the overriding point is that the Government is disposed to take action quickly—as, for example, the quick shift by the Federal Reserve System from its position that inflation was a major threat—to the rapid action taken in lowering the rediscount rate.

For the purchasing agent, this means an even closer look at current economic trends. The shifts will be much more dramatic in the year ahead—will come faster, and could well have much greater significance.

Spokesmen for basic industry see the decline in sales volume extending through the first half of the new year, and express guarded optimism for the second half. Large buyers are buying on short lead times, using the highly competitive conditions to get advantageous delivery. They are



How **REYNOLDS** packs new savings into wire cloth shipments

• Palletized packaging for wire cloth, successfully developed by the Reynolds Wire Division of National-Standard, is now saving customers plenty of time and dollars.

Note in the photographs how rolls of slit and full width material are both mounted on non-returnable pallets. Advantages and savings accrue all along the way.

For example, there's far less chance of damage in shipment. And think how much faster, easier, these unit loads can be handled on arrival . . . in and out of storage . . . and right to production operations.

So chalk up another extra for Reynolds' service . . . and find out what this new packaging method can mean to you! Find out, too, what Reynolds means by quality control and uniformity in wire cloth manufacture. It pays.

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DIVISIONS: NATIONAL-STANDARD, Niles, Mich.; *tire wire, stainless, music spring and plated wires* • WORCESTER WIRE WORKS, Worcester, Mass.; *high and low carbon specialty wires*
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Washington Report

also keeping inventory under tight control.

Question is what can break through this pattern of doing business in order to force an upturn? Government deficit spending is a factor that could set off an inflationary surge. This would stimulate credit. Other and more desirable developments would be new areas of demand.

Problem here is that the economy has become so vast that programs that would have more than carried the promise of prosperity for many years (such as the really spectacular Federal highway program which is fully underway) now make a small dent in the huge national economy.

Price is another uncertainty. All the factors that have worked to boost prices will continue to be present in the period ahead. Wages will increase—many wage contracts call for automatic boosts in the hourly rates this year.

Costs of handling and costs of transportation will keep right on going up. These higher costs have been practically built into our business system.

On the other hand, in a period of declining production, costs per unit go up—also in a competitive sales market, the selling costs increase.

These trends all tend to squeeze against profits.

Metal Price Trends

Materials prices will show conflicting trends. Prices of ferrous metals will remain firm, except that as sales competition heightens, buyers gain some trading advantages.

In the nonferrous metals, price is likely to continue soft. High-cost production has been gradually squeezed out, but supply still exceeds the rate of use. Over-all outlook for non-ferrous is for prices to continue at the lower levels.

Low spots in our economy have always led to pressure from domestic producers to protect U. S. producers and manufacturers against imports. In the metals field, domestic mining interests have been pressing for tariff protection against imports of lead and zinc.

Trade Agreements Act expires June 30 and the Administration proposes that it be extended for an additional five years. Under the proposed extension, the President would be authorized to reduce tariffs by substantial sums.

The Administration justifies this proposal on the grounds that the nations of the Western block have to be permitted to earn dollars, or they will be forced to trade elsewhere. Their allegiances will go with their trade.

However, helping our allies in trade conflicts sharply with the economics of sharply increased costs of domestic production when these are coupled with a drop in market demand.

U. S. tariff policy—always a bone of contention—will be debated in Congress, as one of the major issues up for legislation.

• Government Tightens Purchasing Policy

DEFENSE CHANGES will have an immediate impact on purchasing. The military is being squeezed. The Department of Defense is giving ballistics missiles a free hand—permitting overtime, allowing more latitude in inventory policy and on costs.

Traditional military purchases are bearing the brunt of the liberal missile spending policy. The military is tightening up on purchasing policy in all standard lines of procurement.

Overall policy is to have contractors finance a greater portion of their military business. This makes for higher costs to the contractor.

Note: *Instances are reported of military procurement officers taking a tough line with contractors. There is a general effort to inject as much economy as possible, but the rules of the game have not been changed.* (Turn Page)

For More Information Write No. 168
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The Chief hit the warpath with rage in his eye

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swift
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Washington Report

Missile picture is not clear. There is confusion about terms in missiles. There is the general class of missiles which is largely in the nature of pilotless aircraft—with the same range of speed, and with the same problems of propulsion and manufacture. These have been in production, and many are in operational use.

U. S. Taking Chances

Then there are the long-range ballistics missiles. These require new techniques in design, manufacture, and propulsion—are still experimental. Here is where we as a nation are taking the gamble of pushing them into production before they have been fully tested.

In ballistics missiles, we are pushing ahead in our testing and development, and in several instances are going ahead and producing based on the designs and techniques that we have already developed.

This means that costs of production are on the highest order. Many items are practically on a bench manufacture basis.

Less Money for Materials

Another factor is that while money is being poured into development of ballistics missiles, they will not be produced in large numbers. This means that a larger amount of the dollars spent will be going into research and engineering, and a lesser sum into materials and purchased parts.

Impact on the aviation industry will be substantial. Dollar volume going to industry will be greater than during the past year—but the component mix will be different.

Aircraft Industries Association estimates that the 12 largest contractors in aviation did a gross in 1956 of $5.8 billion—in '57 of between $6.5 and $7 billion. Gross this year will be larger, but more money will be fed out to vendors and suppliers for electronics and guidance.

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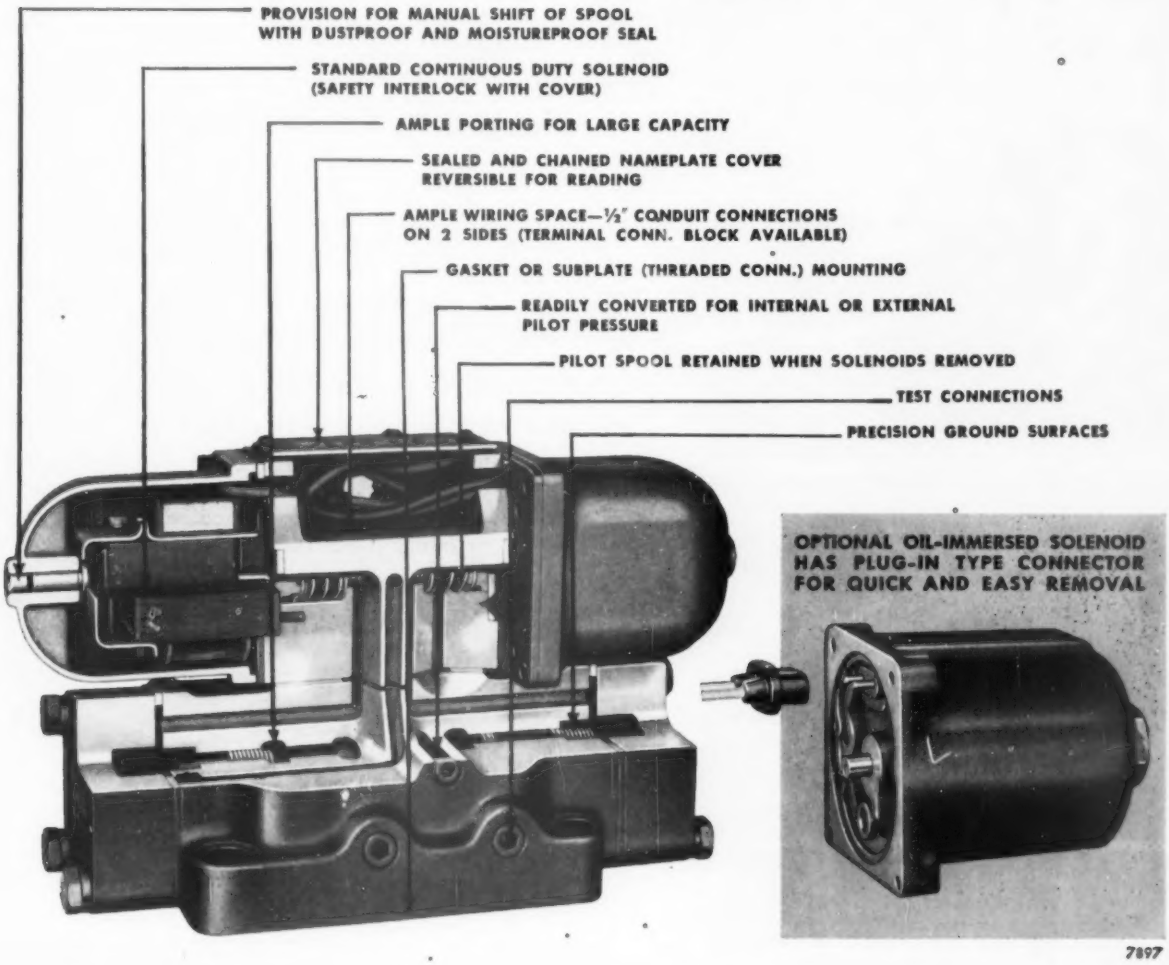
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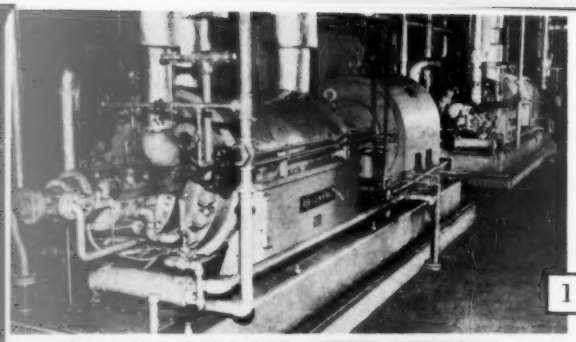

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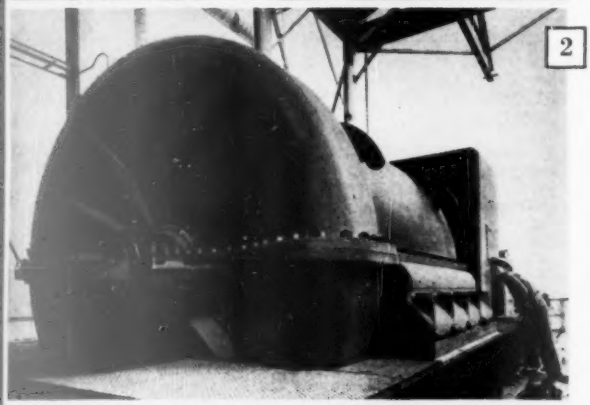

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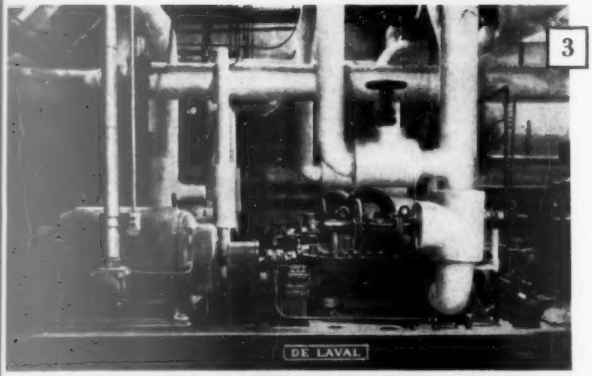

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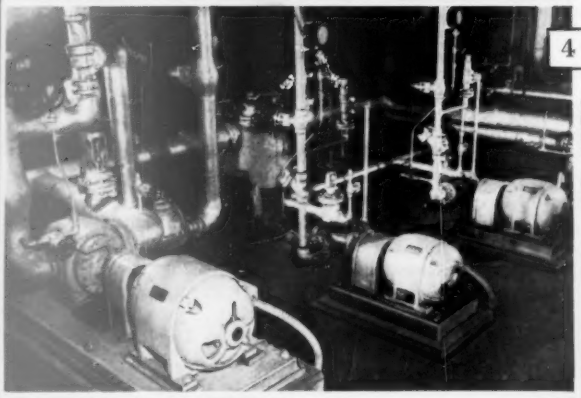

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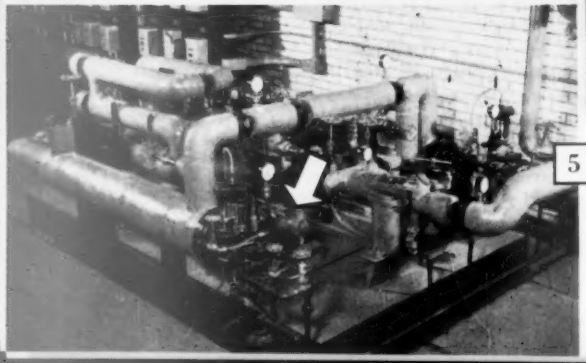

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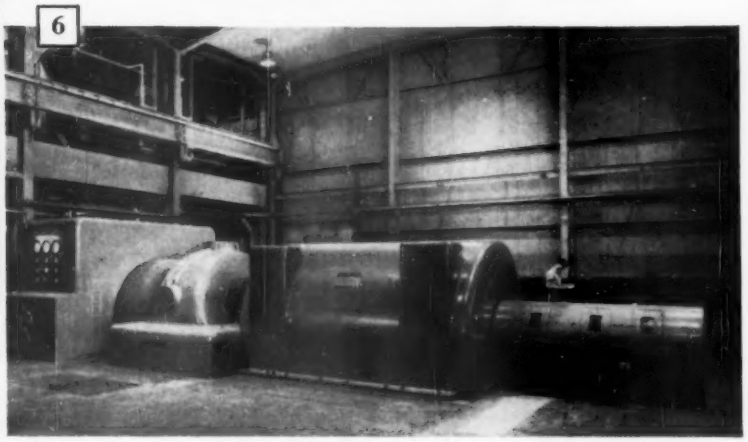

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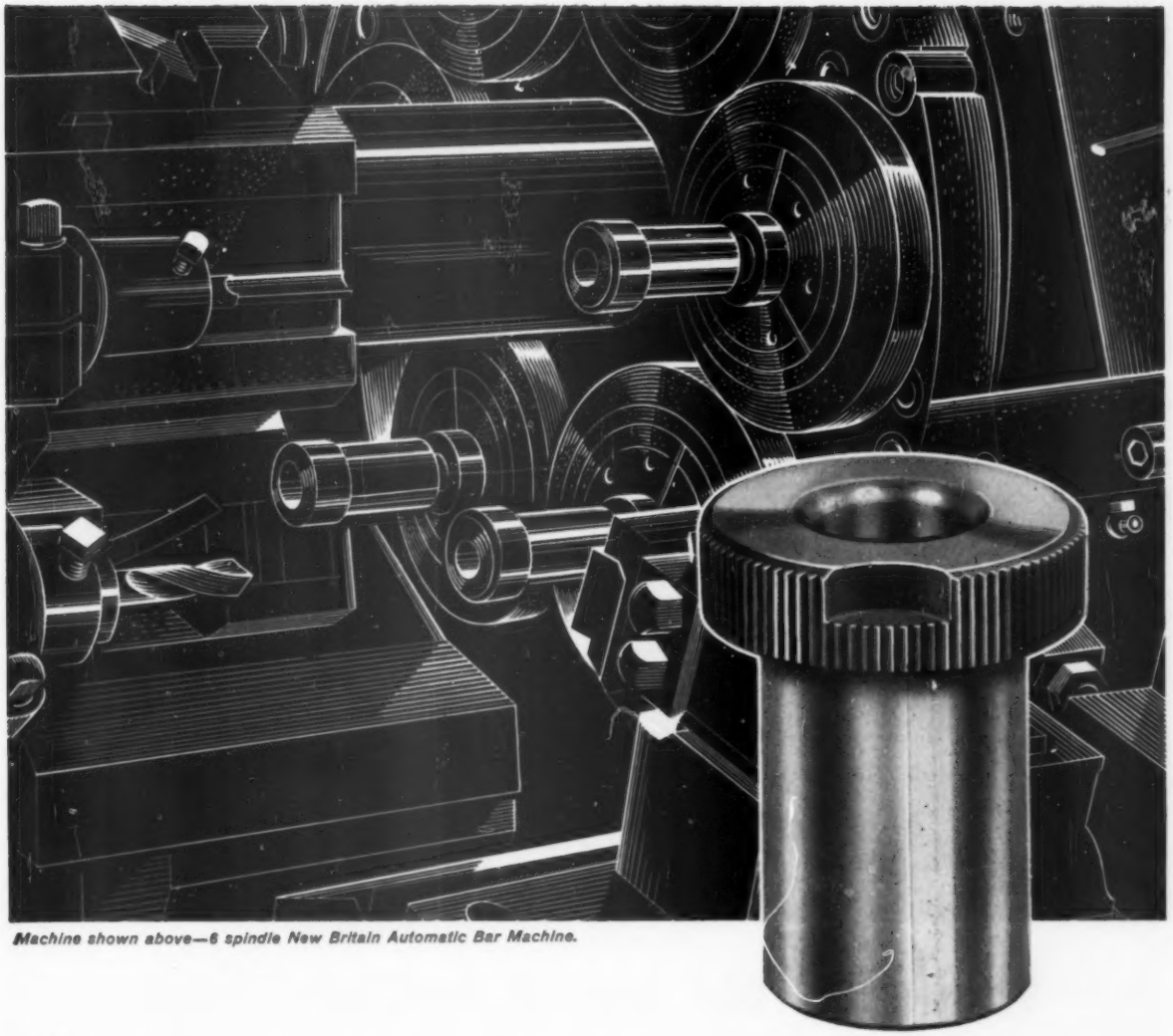

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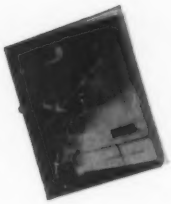

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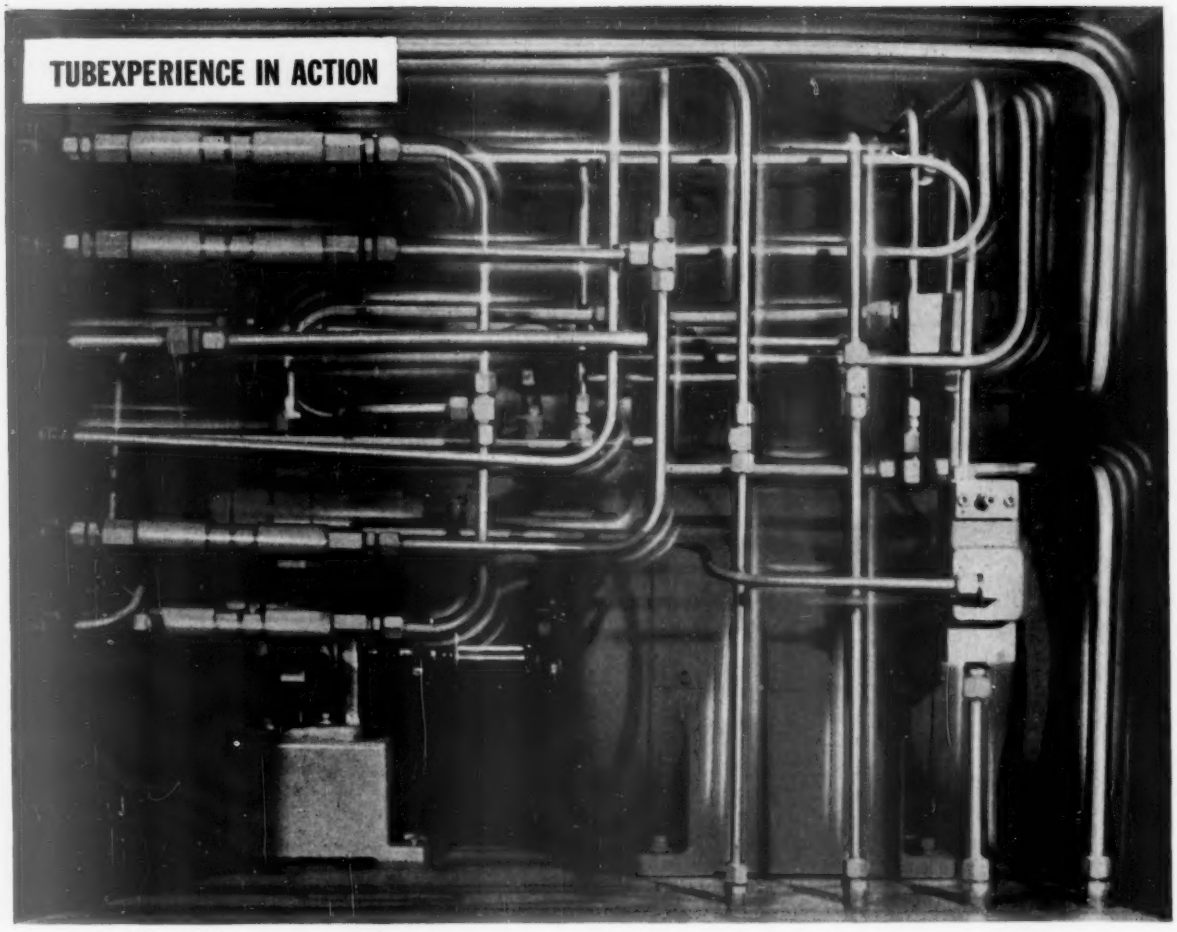

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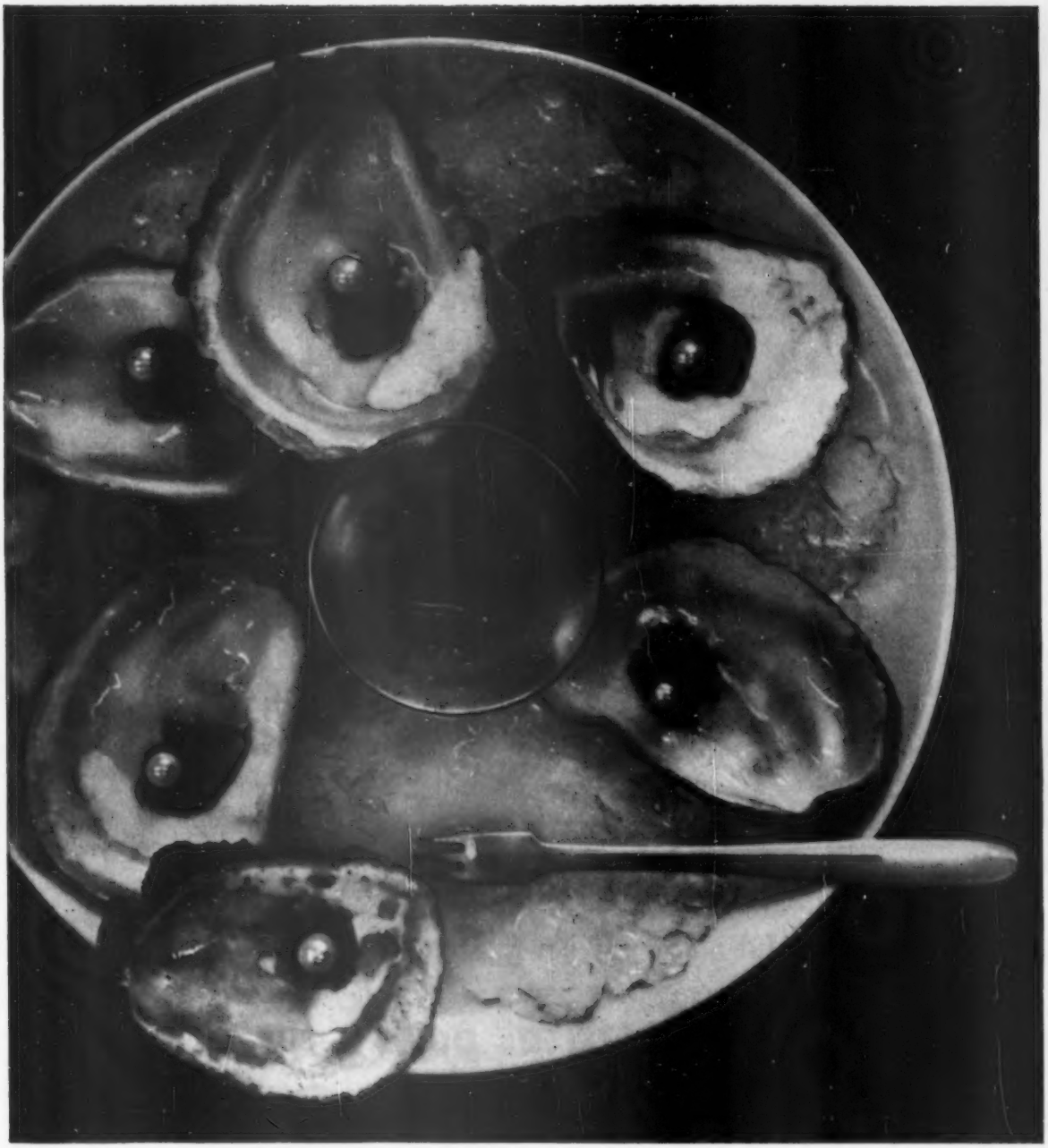

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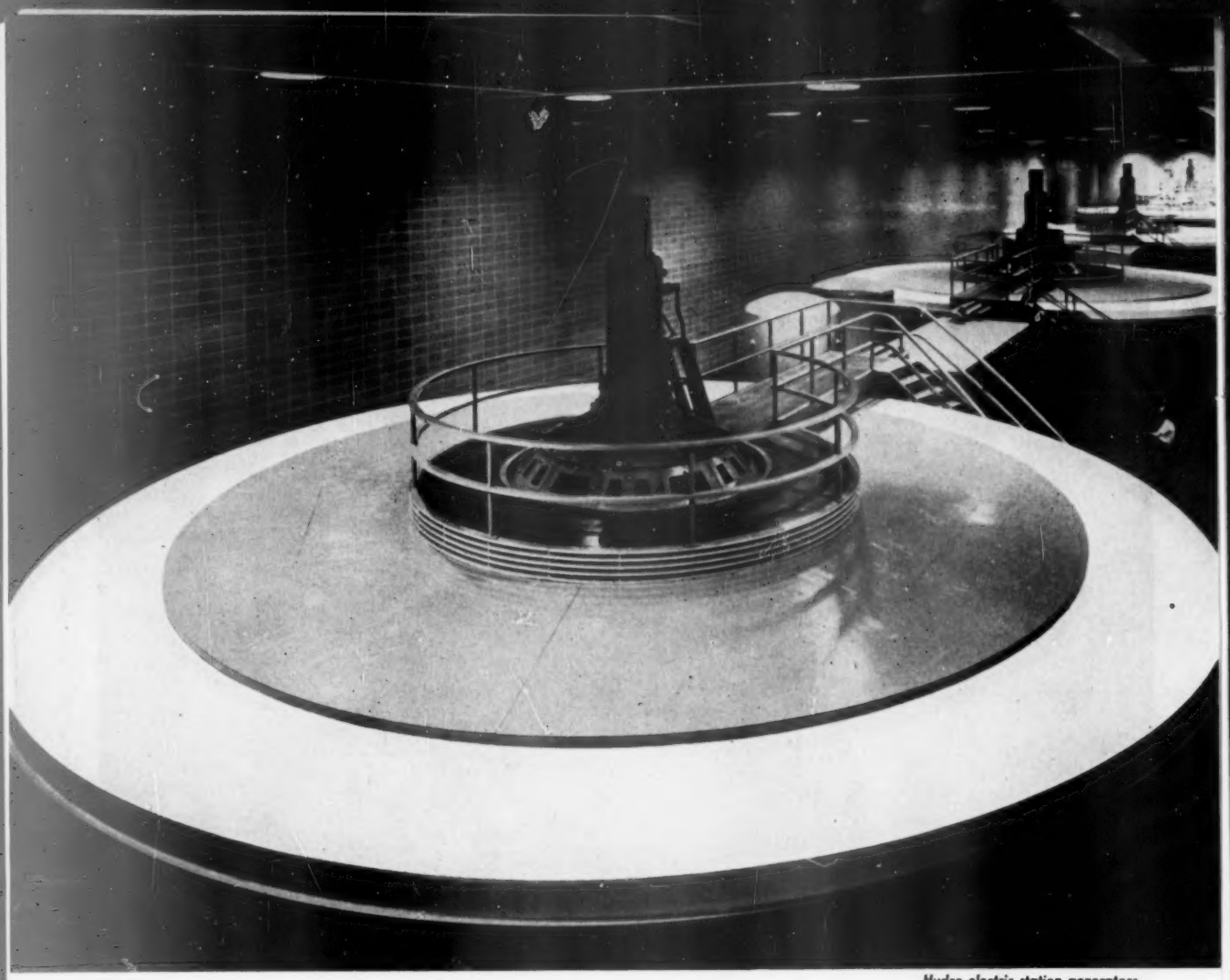

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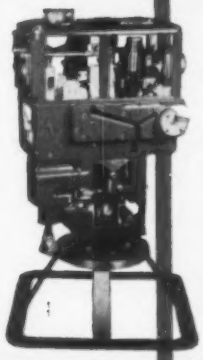
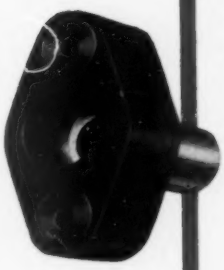
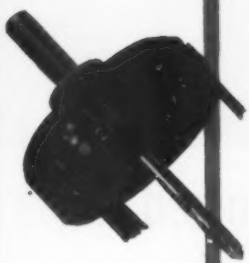
...without sacrificing fastening strength



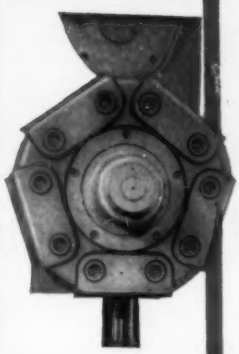
1. **Counterbored holes** are the simplest approach to flush surfaces using standard socket cap screws. The advantage of specifying genuine Allen O Head Cap Screws is the greater strength of Allenoy steel... you can use smaller sizes for closer spacing and reduced weight. Call on Allen, too, for *very large* socket-head, precision cap screws — up to 2½ inch diameter.



2. **Countersinking** enables you to get absolutely smooth external surfaces using Allen O Flat Head Cap Screws. Allen O Cap Screws feature the exclusive Leader Point which makes screw starting easier and guards against thread damage.



3. **Button Head Cap Screws** produce snag-free unbroken surfaces where countersinking is impractical. Button-head hex sockets are necessarily shallow. In genuine Allen O Button-Head Cap Screws, sockets are cold forged without broaching, in extra strength Allenoy steel... essential protection against stripping the sockets under high torque pressure.



4. **A ready made hole tapped in forged steel** solves many a design problem. It's called the Allenut. It can be anchored in soft material to assure durable threading, or recessed to permit tightening with an Allen Hex Key.

5. **Bright finish, or rust and corrosion resistance** call for Allen O Stainless Steel Cap Screws. They are standard stocked items (both NF & NC threads) readily available in a wide range of sizes from Allen Distributors.

YOUR ALLEN DISTRIBUTOR can give you practical help and swift service. For complete information on any technical fastening problem, write our engineering department direct.

ALLEN HEAD

ALLEN

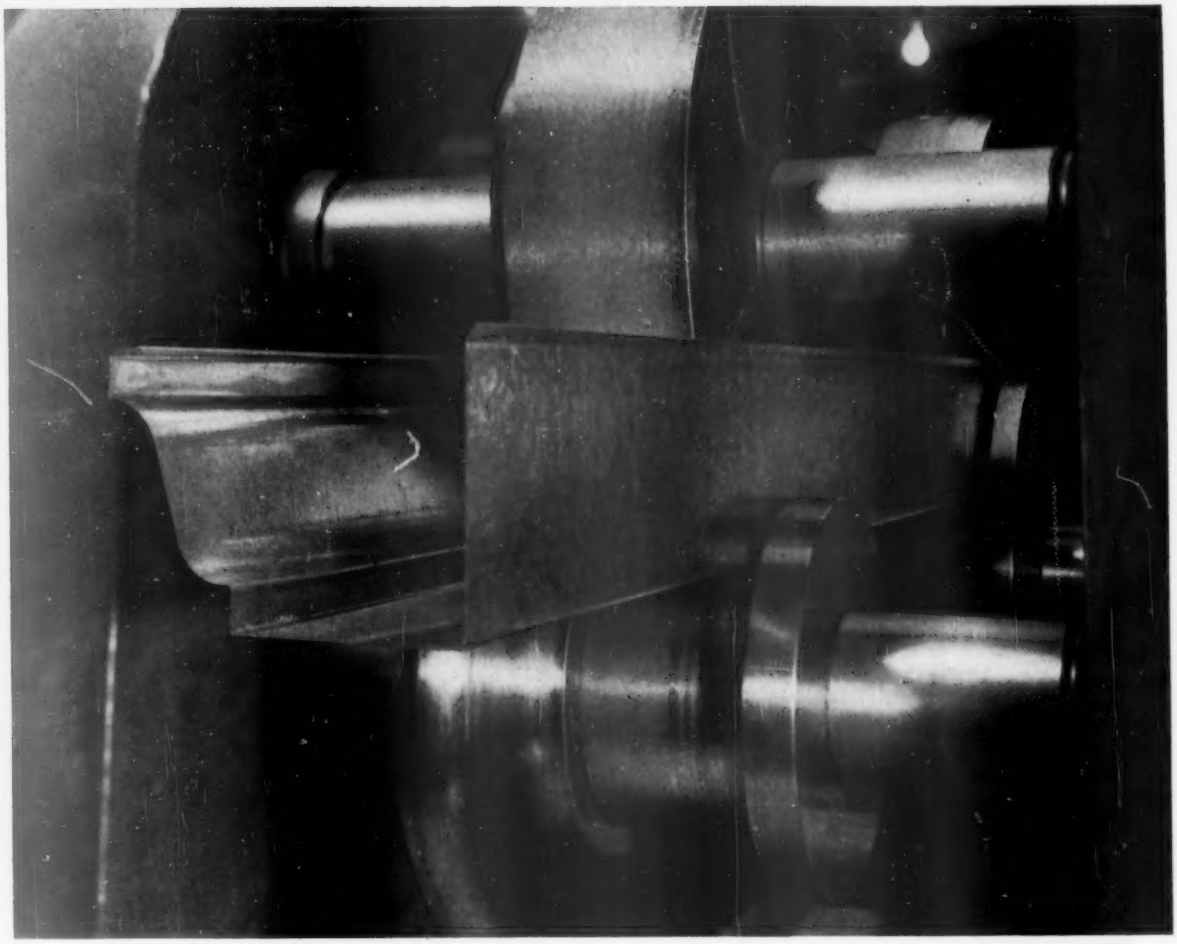
MANUFACTURING COMPANY

Hartford 2, Connecticut, U.S.A.

←For More Information Write No. 177 on Inquiry Card—Page 32

For More Information Write No. 178 on Inquiry Card—Page 32

MATERIAL SELECTION



Forming K-gutters without cracking galvanized finish

Eaves-troughs like this one are known in the trade as galvanized K-gutters, and they are rapidly pushing the old, familiar half-round gutter out of the picture. But the K-gutter is a complex shape to produce, with its multiple bends and sharp corners rolled in quick succession on one machine. Here the strength and durability of galvanized steel are paramount. But how do you roll such a shape without cracking the zinc coating?

Schecter Brothers Company, of Philadelphia, turn out 600 to 800 K-gutters per hour on one machine without cracking the finish. The reason: they use Bethcon sheets, the product of Bethlehem's continuous galvanizing lines. This continuous galvanizing bonds the zinc coating much more tightly to the basic steel, enabling Bethcon to be doubled back on itself without causing failure of the galvanized coating.

Schecter Brothers see another advantage in using Bethcon: they get straighter gutters. That stems from the fact that Bethcon's zinc coating is uniform in thickness. "Our machine here is adjustable to 0.001 in.," explains Mr. Sam Schecter, "and therefore it's very sensitive to any irregularity in the sheet. Any thick spots in the galvanized coating will cause bows or bends in our finished product. We have very little of that kind of trouble with Bethcon."

There are all sorts of interesting ways in which Bethcon is helping manufacturers to solve various design and production problems. If your product needs the strength of steel, as well as the corrosion-resistance of top grade zinc, you're likely to find Bethcon a new answer to your problem. A Bethlehem representative will be glad to discuss Bethcon's possibilities with you. Just name the time and place.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.
On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. *Export Distributor:* Bethlehem Steel Export Corporation

BETHLEHEM STEEL

The Ludlow Line — Protection for Your Product with Paper

How Comet Snake Tape® saves you money in the shipping room

In the days of six-strip sealing, preparing packages for freight shipment was a slow and costly operation. Along came reinforced Comet Snake Tape and a happy change took place in the shipping room. Instead of using six strips per package — *two* strips of Snake Tape were used — *and with approval of all carriers.*

Sealing with Comet Snake Tape is ⅔ faster and more than twice as strong as six-strip sealing with conventional tape.

Snake Tape is typical of Ludlow's *job-tailored* packaging products. Look to Ludlow for greater protection, lower costs and faster packaging. We'll consider it a privilege to serve you!

LUDLOW
PAPERS, INC.
NEEDHAM HEIGHTS 94, MASS.

New York City • Philadelphia • Pittsburgh • Cleveland
Charlotte • Nashville • Chicago • St. Louis • Dallas
San Francisco • Los Angeles • Detroit

The Ludlow Line: VPI-COATED PAPERS • GREASEPROOF PAPERS • WATERPROOF PAPERS • POLY-COATED PAPERS • GUMMED TAPES • FEDERAL SPECIFICATION PAPERS

BEN BUTLER (right), West Coast Production Manager, Borden Company Chemical Division. Left, Bernard Egan, Alaskan Copper & Brass Co., Cooper Alloy distributor for the Pacific Northwest.

BUTLER OF BORDEN CHEMICAL

tells why he buys COOPER ALLOY stainless steel valves

Q. Mr. Butler, why does Borden Company Chemical Division require stainless steel valves?

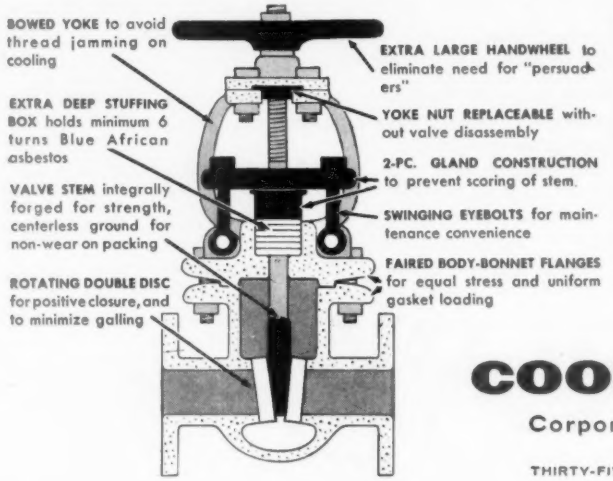
A. In the manufacture of formaldehyde, its derivative resins, and corresponding industrial adhesives only stainless steel can meet our rigid requirements for corrosion, contamination and heat resistance.

Q. What do you consider the most important factor in purchasing valves?

A. The truest measure of a valve is its operating performance. We have never received a complaint on Cooper Alloy valves from our engineers or operating personnel. The extra-large handwheel and unique valve design afford easy operation with positive opening and closing, minimizing maintenance and down time.

Q. What other factors count in choice of valve supplier?

A. Service. The large and complete Cooper Alloy stock at Alaskan Copper affords immediate delivery on stainless steel valves and fittings, as well as pipe. That's a big reason why we buy Cooper Alloy!


BOWED YOKE to avoid thread jamming on cooling
EXTRA DEEP STUFFING BOX holds minimum 6 turns Blue African asbestos
VALVE STEM integrally forged for strength, centerless ground for non-wear on packing
ROTATING DOUBLE DISC for positive closure, and to minimize galling
EXTRA LARGE HANDWHEEL to eliminate need for "persuaders"
YOKE NUT REPLACEABLE without valve disassembly
2-PC. GLAND CONSTRUCTION to prevent scoring of stem
SWINGING EYEBOLTS for maintenance convenience
FAIRED BODY-BONNET FLANGES for equal stress and uniform gasket loading

A VALVE DESIGNED FOR STAINLESS!

The Cooper Alloy valve is not an adaptation of earlier brass and iron patterns. Cooper Alloy, with over 35 years of experience in handling stainless steel, created a valve *designed to be cast in stainless!* **Check the Special Design Features shown at left.**

As the little CA man below is saying: *"You can tell a Cooper Alloy Valve as far as you can see it!"* Write today for *your* copy of our folder "Design Factors In Stainless Steel Valves." The Cooper Alloy distributor near you will be glad to show you the complete line of Cooper Alloy valves *and fittings*, and their advantages. He can serve you promptly from local stocks.

COOPER ALLOY

Corporation • Hillside, New Jersey

VALVE & FITTING DIVISION

THIRTY-FIVE YEARS OF STAINLESS STEEL PIONEERING

For More Information Write No. 181 on Inquiry Card—Page 32

For More Information Write No. 182 on Inquiry Card—Page 32→

San Francisco • Los Angeles • Detroit

The Ludlow Line: VPI-COATED PAPERS • GREASEPROOF PAPERS • WATERPROOF PAPERS • POLY-COATED PAPERS • GUMMED TAPES • FEDERAL SPECIFICATION PAPERS

One Pallet of Quality -Coming Up!

Whatever packaging you choose for the Roebling Magnet Wire you buy, you are certain the wire is of *unsurpassed quality!*

Modern manufacturing methods . . . quality ingredients . . . wire-making skill based on decades of experience . . . exacting testing and inspection—all these factors combine to assure this one high standard. Yet *quality* Roebling Magnet Wire costs no more than others!

Roebling Magnet Wire comes in types and sizes exactly suited to your applications . . . and packaged to give you utmost flexibility, efficiency, economy. Write Electrical Wire Division, John A. Roebling's Sons Corporation, Trenton 2, New Jersey, for all the facts.

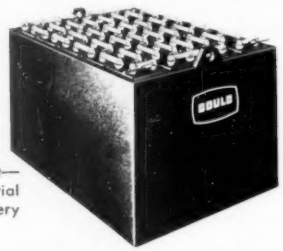
ROEBLING

Branch Offices in Principal Cities
Subsidiary of The Colorado Fuel and Iron Corporation

Hy Peskin photo taken at Ice Follies.

You'll go "Head over Heels" for

gould *extra benefits:*



America's Finest—
Gould Industrial
Truck Battery

Largest application engineering staff to give you continuous assistance in training your new battery maintenance personnel, establishing good preventive maintenance procedures, and checking efficiency of charging methods . . . all in the interest of insuring that you get maximum long life from your Gould Batteries.

Ask for new booklet ". . . so you're going to buy an industrial battery" . . . Objective digest of what to look for. Write Gould-National Batteries, Inc., Trenton 7, N. J.

©1957 Gould-National Batteries, Inc.

Always Use Gould-National Automobile & Truck Batteries

More Power to you from Gould

For More Information Write No. 206 on Inquiry Card—Page 32

Bearings, Inc. service...this catalogue ...these plant men add up to big savings in bearing purchases!

Our Bearing Engineer was given permission by his customer to survey and compile a list of all equipment in their new plant. The proper bearings for each piece of this equipment were then catalogued. Shown above is the plant engineer, plant superintendent, and our sales engineer going over the results of his work. This catalogue shows application data on all machinery in the plant and lists the total number of bearings in the plant by size and bearing manufacturers' numbers.

It's now the "Bible" of the plant for bearing purchases and savings, since its completion, have been impressive!

Maintenance men now know the exact replacement bearing to requisition from stock. All bearings are correctly identified and are now ordered with the proper bearing numbers. Stocking several identical bearings for different machinery applications is *eliminated*.

We can perform this and many other services for *you*... For if it's a bearing problem, a call to our nearest branch will get you the answer!

Providing bearing service in the North ➤ **BEARINGS, INC.**

OHIO: Akron • Canton • Cincinnati • Cleveland • Columbus • Dayton • Elyria • Hamilton • Lima • Lockland • Mansfield • Toledo • Youngstown • Zanesville
INDIANA: Ft. Wayne • Indianapolis • Muncie • Terre Haute • **PENNSYLVANIA:** Erie • Johnstown • Philadelphia • Pittsburgh • York
WEST VIRGINIA: Charleston • Huntington • Parkersburg • Wheeling • **NEW JERSEY:** Camden
NEW YORK: Buffalo, Balanrol Corp. • **MARYLAND:** Baltimore • **DELAWARE:** Wilmington

and

in the South ➤ **DIXIE BEARINGS, INC.**

FLORIDA: Jacksonville • **GEORGIA:** Atlanta • **KENTUCKY:** Louisville • **LOUISIANA:** Baton Rouge • New Orleans
N. CAROLINA: Charlotte • Greensboro • **S. CAROLINA:** Greenville • **TENNESSEE:** Chattanooga • Kingsport • Knoxville • Nashville

For More Information Write No. 183 on Inquiry Card—Page 32

IRON CURTAIN SMASHED!

"NEWS ITEM NO. 1 — 1958"

The Bound Brook Oil-Less Bearing Company has proudly smashed through the iron curtain of skepticism surrounding the use of sintered iron bearings. Although Bound Brook's POWDIRON has long been hemmed in by indifference and predjudice, this LOW-COST, tough performer has higher strength than bronze, excellent finish, and bearing characteristics adequate for many applications. Find out how POWDIRON can smash your bearing costs and strength problems to-day.

BOUND BROOK

BOUND BROOK OIL-LESS BEARING CO., EST. 1883, BOUND BROOK, N. J.

Pioneer in

POWDER METALLURGY BEARINGS + PARTS

our 75TH year

Information For Your Catalog Files

BEARINGS

A 24-page, 3-color catalog outlines type and functions of miniature precision ball bearings for the electronics, instrumentation and similar fields. Sizes range from 1/10" to 3/8" OD.

Miniature Precision Bearings, Inc.

Write No. 1 on Inquiry Card—Page 32

CHEMICALS

Physical property data on over 350 organic chemicals is presented in the 20-page booklet, No. F-6136. Fifty of the chemicals are newly introduced. There are condensed application hints.

Union Carbide Chemicals Co.

Write No. 2 on Inquiry Card—Page 32

CONTROLS

Capsule information on a full line of relays, thermostats, rotary and range switches, motor controls and "snap-ins" is contained in a pocket sized illustrated folder.

Hart Mfg. Co.

Write No. 3 on Inquiry Card—Page 32

CUTTERS

Catalog No. 37C contains 96 pages of detailed information about a full line of cutters and accessories. Dimensions and prices are supplied together with distinguishing ordering number.

Brown & Sharpe Mfg. Co.

Write No. 4 on Inquiry Card—Page 32

DIE CASTINGS

A wealth of data on factors which influence production of sound alloy castings with good surface finish is contained in a pocket-sized 36-page booklet. Faults and defects are discussed.

Henning Bros. & Smith, Inc.

Write No. 5 on Inquiry Card—Page 32

DIE SET PINS, BUSHINGS

Catalog No. 70-A, Section 3, describes in eight pages a complete line of precision guide pins, shoulder guide pins, commercial guide pins and bushings. Specifications and prices are given.

E. W. Bliss Co.

Write No. 6 on Inquiry Card—Page 32

ELECTRONICS

A multi-colored booklet is designed to examine the various factors which affect electronic development and to see how they are interrelated and mutually dependent.

Amphenol Electronics Corp.

Write No. 7 on Inquiry Card—Page 32

ENGINE (FREE PISTON)

Detailed specifications and estimated performance data on a newly developed turbocharged free-piston engine (No. FP-165) are supplied in a 36-page booklet. It covers wide range of services.

Baldwin-Lima-Hamilton Corp.

Write No. 8 on Inquiry Card—Page 32

FASTENERS

The 2-color catalog (Form 8-414) describes in 12 pages CL commercial fasteners and their application. Included is data on fastener nomenclature, shear and tension values and hole sizes.

Huck Mfg. Co.

Write No. 9 on Inquiry Card—Page 32

FIRE ALARM SYSTEMS

Fire alarm systems for protecting all kinds of property are covered in a comprehensive catalog. It will aid planning, installing or expanding fire alarm systems anywhere.

The Autocall Co.

Write No. 10 on Inquiry Card—Page 32

FOOD SERVICE

A booklet, compiled for anyone interested in in-plant feeding techniques, explains the services of the food service consultant. He exploits factors leading to better performance at low cost.

Integrated Design Associates

Write No. 11 on Inquiry Card—Page 32

GAGES, VALVES

Condensed catalog No. 305 illustrates standard and special function gages and valves, supplying dimensional drawings and construction features. It contains pressure-temperature graphs.

Jerguson Gage & Valve Co.

Write No. 12 on Inquiry Card—Page 32

Information For Your Catalog Files

GRINDING

A 24-page informative brochure is designed as a single source book on tool room grinding techniques. It covers 22 areas with short facts, illustrative pictures and clarifying charts.

The Carborundum Co.

Write No. 13 on Inquiry Card—Page 32

GRINDING MACHINES

Supplemented by photos, charts and tables, a 2-color, 16-page catalog describes two swing plain cylindrical grinding machines. Their sizes are 14″ and 18″ for workpieces of 6500 lb.

Landis Tool Co.

Write No. 14 on Inquiry Card—Page 32

HEATING COILS

Catalog No. 1715 covers heavy duty steam heating coils. The 12-page booklet gives selection data and suggested piping arrangement as well as diagrams and detailed descriptions.

Westinghouse Sturtevant Div.

Write No. 15 on Inquiry Card—Page 32

INDUCTOR AIR CONDITIONERS

A 16-page, 2-color bulletin No. 8827 discusses a line of air inductors for perimeter air conditioning of multi-storied buildings. It outlines features, characteristics and installation.

American Blower Div.

Write No. 16 on Inquiry Card—Page 32

LIGHT ALLOYS

Catalog No. 57 lists physical properties and conforming specifications for magnesium and aluminum alloys. Also covered are alloys for sand castings, and permanent molds.

Wellman Bronze and Aluminum Co.

Write No. 17 on Inquiry Card—Page 32

LUBRICANTS

A wide range of tough lubrication jobs in industry is discussed in a 16-page brochure with guides to the use of particular products in solving the most severe applications.

Brooks Oil Co.

Write No. 18 on Inquiry Card—Page 32

MACHINES (WIRE, STRIP)

Operating features and specifications for an all-purpose vertical four slide machine, handling both wire and strip, are given in the 8-page bulletin, V-82. Photos show operation.

The Torrington Mfg. Co.

Write No. 19 on Inquiry Card—Page 32

PAPERS (SPECIALTY)

An illustrated 12-page booklet analyzes use and advantages of specialized papers in product design for such applications as facsimile transmission, gaskets, electronic laminates, etc.

Knowlton Brothers

Write No. 20 on Inquiry Card—Page 32

PIPE, TUBING (STAINLESS)

Technical data card 188 furnishes analysis details and comparative price ratios of 33 seamless stainless pipe and tubing grades, using Type 304 (18-8) as a base.

The Babcock & Wilcox Co.

Write No. 21 on Inquiry Card—Page 32

POWDERED METAL PARTS

A pocket-size, 16-page booklet shows how to cut costs of precision parts by means of the powdered metal process. It eliminates drilling, turning, stamping and machining to lower costs 90%.

Reese Metal Products Corp.

Write No. 22 on Inquiry Card—Page 32

PROCESS CONTROL

Nuclear magnetic resonance and other new analytical processes as improvements in control and detection techniques are examined in a brochure reprint. Non-spectographic methods are discussed.

Schlumberger Well Surveying Corp.

Write No. 23 on Inquiry Card—Page 32

PROCESSING MACHINES (METAL)

Rolling mills, gang slitters, wire flattening lines, roller levelers and related machines are described in a 16-page, 2-color brochure, No. 1057. Photos depict numerous field applications.

Stanat Mfg. Co.

Write No. 24 on Inquiry Card—Page 32

This Modern Building Has Life-time Wiring Protection -- Thanks to

YOUNGSTOWN "BUCKEYE" CONDUIT

First National Building, Tulsa, Okla.
Owner: Fifth and Boston Corp., Tulsa, Okla.
Architect: Carson & Lundin, New York, N. Y.
General Contractor: Manhattan Construction Co., Muskogee, Okla.
Electrical Contractor: Western Division of J. Livingston Co., St. Louis, Mo.
Conduit Supplier: Westinghouse Electric Supply Co., Tulsa, Okla.

Fifth and Boston Corporation's strikingly beautiful First National Building at Tulsa, Oklahoma, utilizes quality-controlled Youngstown "Buckeye" Black Enameled Full Weight Rigid Steel Conduit exclusively, for protection of its all-important electrical wiring system.

Nationally-known building owners, leading contractors and progressive architects realize that electrical systems that don't function safely and efficiently are definitely a bad investment. So to guard against this costly condition they specify Youngstown "Buckeye" Conduit for its long, trouble-free service life.

"Buckeye" Conduit is easy to fabricate on the job—easy to fish wires through—and thoroughly corrosion-resistant to damaging elements such as water, moisture, vapor, dust and dirt.

Leading distributors in every industrial and electrical market are ready to serve you quickly from their ample stocks. They're as near as your phone—why not call today?

Standard-threaded rigid steel conduit is the only wiring system approved today by the National Electrical Code as moisture-, vapor-, dust- and explosion-proof for use in hazardous locations and occupancies.

QUALITY YOUNGSTOWN SERVICE

THE YOUNGSTOWN SHEET AND TUBE COMPANY
Manufacturers of Carbon, Alloy and Yoloy Steel
General Offices - Youngstown 1, Ohio
District Sales Offices in Principal Cities

For More Information Write No. 185 on Inquiry Card—Page 32

CRYSTAL-CASE SIZE! PERMANENT MAGNET DESIGN.

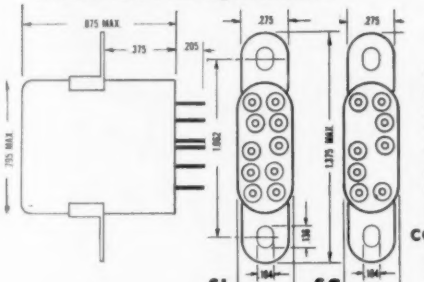
SHOCK: 100g. VIBRATION: 30g 55 TO 2000 cps. NO CONTACT OPENINGS.

The new SC non-latching type and SL latching type crystal-case size micro-miniature relays further expand the broad Potter & Brumfield relay line. Over 40 basic relays—more than 20,000 variations—are available for practically any relay requirement.

Our engineering staff is at your command and will work with your engineers in the development of special relays for your exact requirements.

Three P&B plants, located at Princeton, Ind., Franklin, Ky. and Laconia, N.H. provide the largest production facilities in the industry. Over 500 distributors across the country provide "off the shelf delivery" of most P&B relay types.

See the yellow pages of your classified phone directory for your local distributor and P&B representative.



SC and SL Series Engineering Data

Operate Time: 3 MS. max. with 550 ohm coil @ 24 V. DC. (SL: 630 ohm coil at 24 V. DC).

Transfer Time: 0.5 MS max.

Terminals: (1) Plug-in for miniature receptacle of printed circuit board. (2) Hook end solder for one #20 AWG wire.

Enclosure: Hermetically sealed.

CONTACTS: Arrangement: 2 Form C.

Material: Gold flashed palladium.

Load: 2 amps @ 28 V. DC, resistive; 1 amp @ 115 V. AC, resistive.

Pressure: SC—13 grams min.; SL—16 grams min.

COIL: Power: Approx. 1.0 watt at Nominal Voltage.

Resistance: SL—40 to 1400 ohms; SC—35 to 1250 ohms.

Duty: Continuous.

MOUNTINGS: Bracket, stud and plug-in.

GENERAL: Insulation Resistance: 10,000 megohms, min.

Breakdown Voltage: 1,000 V. RMS.

Shock: 100g.

Vibration: 30g 55 to 2000 cps.; 0.195" max. excursions from 10-55 cps.

Temperature Range: -65°C. to +125° C.

Weight: 17.5 grams (5/8 oz.).

P&B Standard Relays are available at your local electronic, electrical and refrigeration distributors

Potter & Brumfield, inc.

PRINGETON, INDIANA · SUBSIDIARY OF AMERICAN MACHINE & FOUNDRY COMPANY

Manufacturing Divisions also in Franklin, Ky. and Laconia, N.H.

For More Information Write No. 186 on Inquiry Card—Page 32

Catalog Files

SPEED REDUCERS

Some 164 standard styles and sizes of double-reduction speed reducers in ratios from 75:1 to 4900:1 are covered in 20-page catalog, CD-230. It facilitates picking a reducer for any job.

Cone Drive Gears. (Div., Michigan Tool Co.)

Write No. 25 on Inquiry Card—Page 32

STEAM DISTRIBUTING COILS

An 8-page, 8½ x 11 illustrated, 2-color bulletin, No. B-1418 describes the features of Type D-1, double-tube steam distributing coils. It gives full physical data with installation drawings.

American Blower Div.

Write No. 26 on Inquiry Card—Page 32

STEELS

Ultra-strength structural steels with yield strengths over 200,000 psi form the subject of a 16-page booklet. It details all the grades of this type steel available in the U.S. today.

Climax Molybdenum Co.

Write No. 27 on Inquiry Card—Page 32

SWITCH

Bulletin GEA-6706 (8 pp.) provides detailed information on a line of surface and desk mounted heavy-duty master switches. Line drawings illustrate configurations and dimensions of units.

General Electric Co.

Write No. 28 on Inquiry Card—Page 32

TOOLS (SCREW MACHINE, TURRET LATHE)

A 32-page catalog contains listings and prices of a full line of precision tools and attachments for automatic screw machines and turret lathes. It instructs on their proper use.

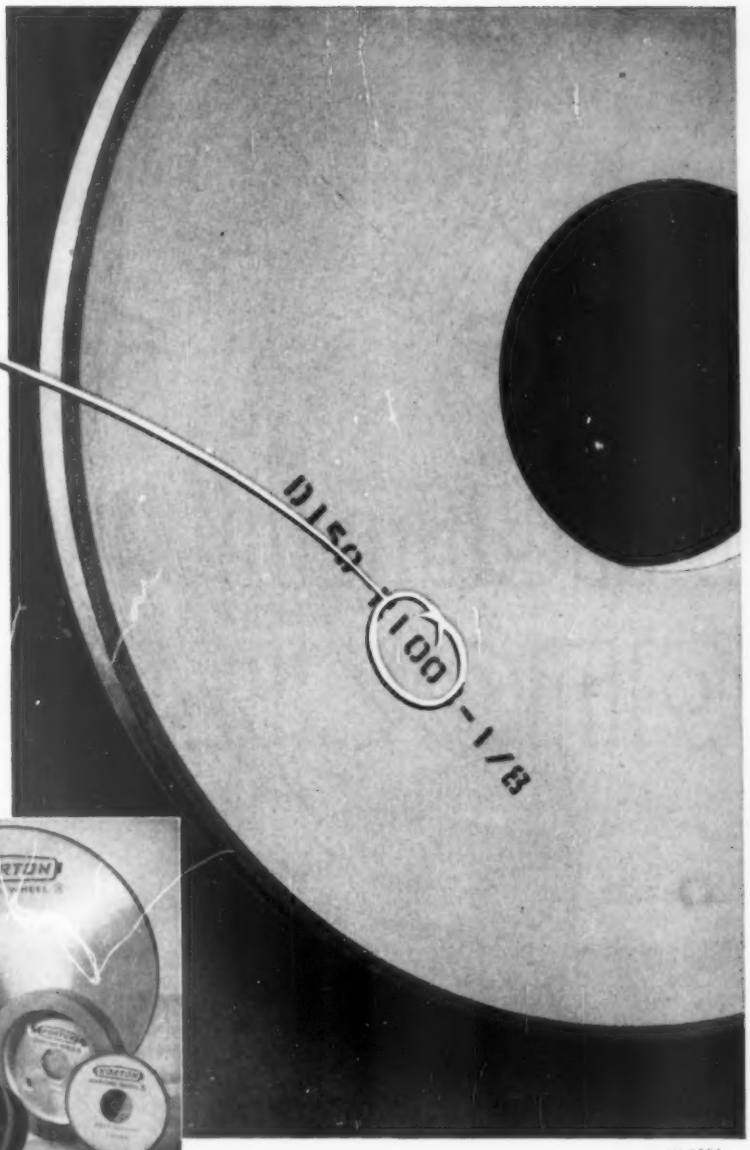
R and L Tools

Write No. 29 on Inquiry Card—Page 32

For More Information Write No. 185 on Inquiry Card—Page 32

On Norton diamond wheels ...this mark is

Your CERTIFIED Buying Guide



W-1836

On this Norton diamond wheel we have highlighted the mark indicating diamond concentration — in this case, 100.

What is the exact meaning of the Norton 100 mark?

It means that each Norton 100 concentration diamond wheel contains an amount of diamond in carats calculated to a formula of 72 carats per cubic inch. Wheels of 75, 50 and 25 concentration of diamond contain 75%, 50% and 25% of this 100 concentration standard, respectively.

The finished wheel contains the calculated number of carats of diamond except for the slight loss resulting from truing the diamond section to place the wheel in proper truth and condition for grinding.

With each wheel you get a certificate assuring the complete dependability of its concentration mark, signed by the President of this Company.

The Norton certified mark is your safest possible buying guide. It assures the top performance and long wheel life that you're paying for.

And remember:

Besides duplicating wheel specifications with constantly controlled accuracy, Norton was first to introduce all three types of diamond wheels — metal, resinoid and vitrified bonded . . . does all its own sizing, grading and laboratory checking of diamond bort . . . brings you a complete line, covering every diamond wheel application . . . gives you fast service from full stocks.

See Your Norton Distributor

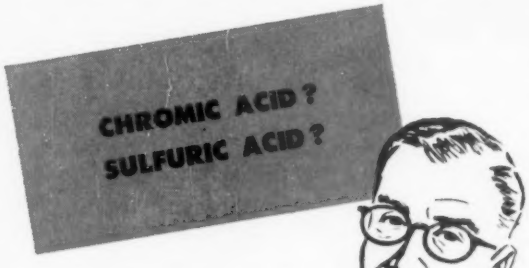
for the diamond wheels you need. Or write to NORTON COMPANY, General Offices, Worcester 6, Mass. Plants and distributors around the world.

NORTON
ABRASIVES
Making better products . . . to make your products better

NORTON PRODUCTS
Abrasives • Grinding Wheels
Grinding Machines • Refractories
BEHR-MANNING DIVISION
Coated Abrasives • Sharpening Stones
Pressure-Sensitive Tapes

For More Information Write No. 187 on Inquiry Card—Page 32

Aluminum anodizing ?



At any stage, from planning to production, your problems can *best* be solved by H-VW-M . . . the one company combining complete engineering service with a complete line of equipment, processes and supplies. For further information, write to **Hanson-Van Winkle-Munning Company, Matawan, New Jersey. Offices in principal cities.**

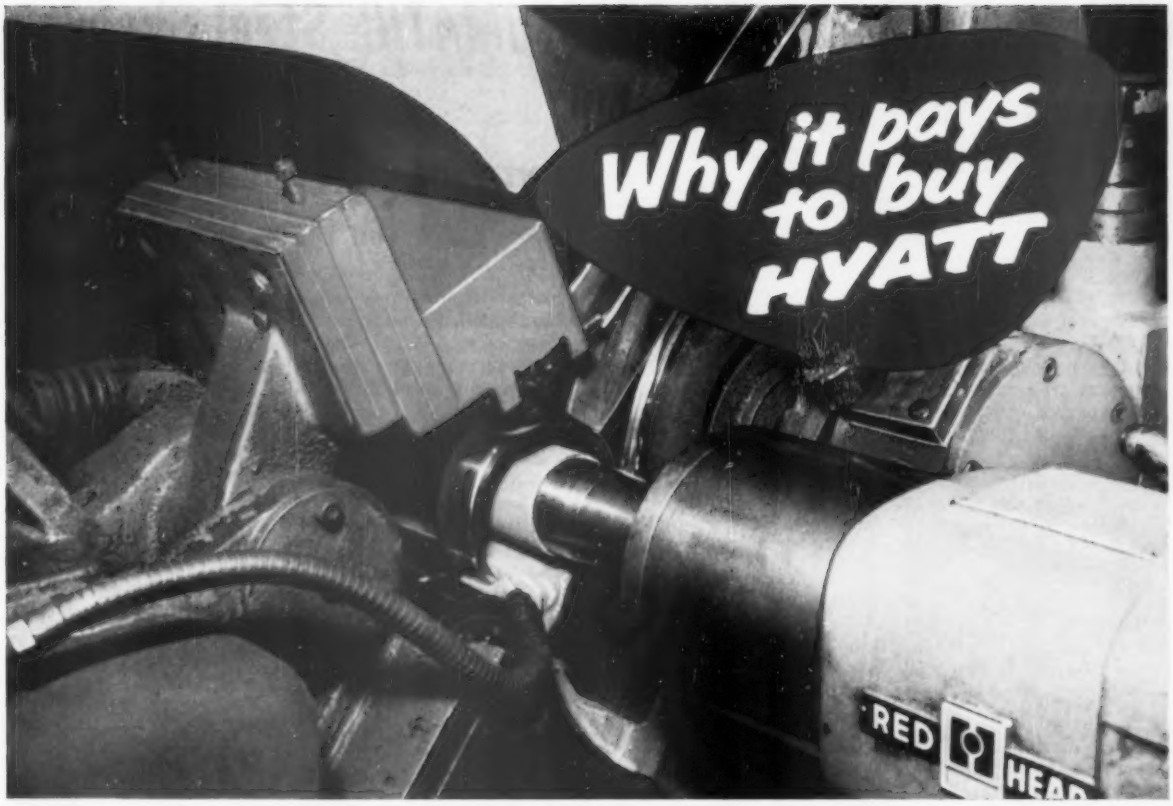
H-VW-M

PLATEMANSHIP—Your H-VW-M combination—of the most modern testing and development laboratory—of over 80 years experience in every phase of plating and polishing—of a complete equipment, process and supply line for every need.

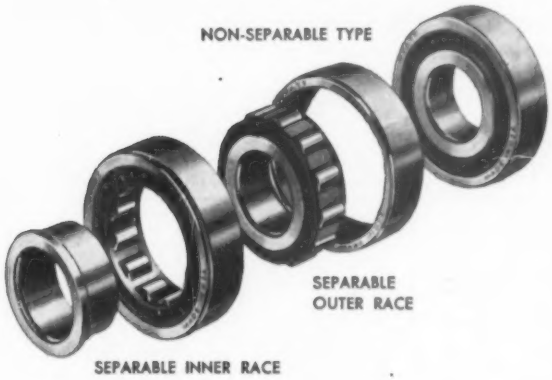
1637

Industry's Workshop for the Finest in Plating, Anodizing, and Polishing Processes • Equipment • Supplies

For More Information Write No. 188 on Inquiry Card—Page 32



HYATT'S electronically-controlled grinding assures more precise diameters for longer, smoother operation



Completely modern production processes are a major reason why purchasing agents, seeking maximum performance for every dollar invested in bearings, standardize on HYATTS. This HYATT bearing race inner diameter grinding operation, for example, assures greater race concentricity than ever before attained in quantity production.

Uncompromising control of internal dimensions and clearances make a *difference* in bearing performance. That's why HYATT Hy-Rolls always run smoother, last longer, and prevent excessive heat and vibration problems often encountered with inferior bearings.

For *lowest bearing cost per hour of service*, standardize on HYATT Hy-Rolls. Hyatt Bearings Division, General Motors Corporation, Harrison, N. J.; Pittsburgh; Detroit; Chicago; Oakland, California.

THE RECOGNIZED LEADER IN CYLINDRICAL BEARINGS

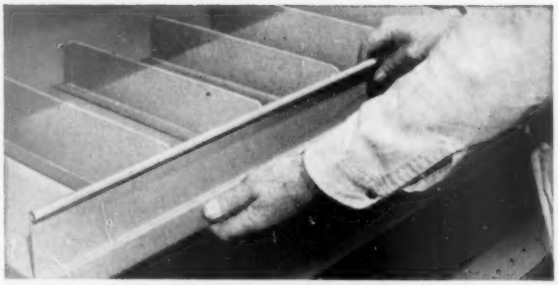
1908–1958 GM FORWARD FROM FIFTY

HYATT HY-ROLL BEARINGS FOR MODERN INDUSTRY

For More Information Write No. 189 on Inquiry Card—Page 32

Only New HALLOWELL *ERECTOMATIC.* Steel Shelving

cuts assembly time, permits fast repositioning of shelves —gives you these plus features



STRAIGHT-IN, STRAIGHT-OUT SHELF CHANGE. No tilting. No dismantling. No interference with any other shelf.

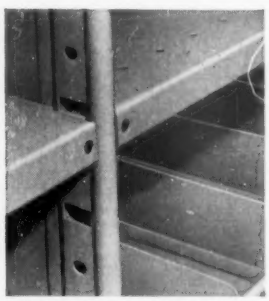
No matter what type of shelving you need—open, closed, bin units, ledge units, counters or cabinets—new Hallowell ERECTOMATIC® steel shelving makes the job easy. The unique built-in locking device*—developed by SPS—speeds assembly and rearrangement of shelves. To position a shelf, slide it into place on the shelf supports, press the locks, and the shelf is locked. To reposition a shelf, release the locks, pull the shelf straight out, slide it straight in on its supports at the new location, and press the locks. It takes only seconds to do the complete job. Made of prime steel, phosphate coated, and finished in SPS green baked-on enamel—other colors are available. Hallowell ERECTOMATIC steel shelving is stocked by leading industrial distributors and shop equipment dealers. For complete information, see the one nearest you. Or write Hallowell Shop Equipment Division, STANDARD PRESSED STEEL CO., Jenkintown 31, Pa.

*Patent applied for

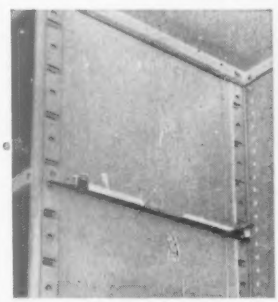
INDEPENDENT SHELF POSITIONING. Each shelf can be repositioned individually in seconds.

FULL USE OF SHELF AREA. No tees or angles, and beaded posts save valuable space.

COMMON SIDE PANELS AND POSTS save material between adjacent units in a rack. Back and side panels are one-piece.

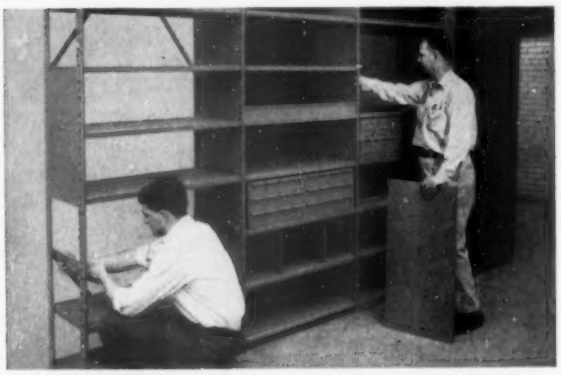


BEADED POSTS AND FLANGED SHELVES prevent snagging of clothing or stored goods, protect workers.



FULL DEPTH SHELF SUPPORT. No buckling possible. Reinforcements can be added when required.

4 CLASSES OF SHELVES. Regular, medium, heavy and extra-heavy construction meets all load requirements.



TWO MEN ASSEMBLED new Hallowell ERECTOMATIC steel shelving in just over 10 minutes. Closed unit was 36 in. wide, 18 in. deep, 7 ft. 3 in. high, complete with seven shelves. Standard models of other design required 13-55 min. Table shows test results.

Brand	Time to Assemble (Min.)	Units Per Hour
Erectomatic	10.42	5.75
A	13.23	4.53
B	14.24	4.21
C	16.30	3.68
D	18.12	3.31
E	25.03	2.40
F	55.03	1.09

HALLOWELL® SHOP EQUIPMENT DIVISION

STANDARD PRESSED STEEL CO.

SPS

JENKINTOWN PENNSYLVANIA

For More Information Write No. 190 on Inquiry Card—Page 32

Suppliers in the News

International Resistance Company, Philadelphia, has announced the promotion of J. Burton Henry to sales manager,

J. Burton Henry

New Products Division. Mr. Henry will also continue to serve in his present capacity as administrator for all company sales divisions. He joined the company in 1944 and since that time has held a variety of important managerial positions.

Howard W. Ludwig has been promoted to sales manager of **Bearings Company Division, Federal-Mogul-Bower Bearings,**

Howard W. Ludwig

Inc., Lancaster, Pennsylvania. He had been associated with Bower Roller Bearing Company for about 25 years. Since the company became a division of Federal he has been automotive original equipment sales engineer. Mr. Ludwig succeeds Walter T. Camp, who has been named general manager, **Arrowhead Products Division** of the parent company at Long Beach, California.

Vern Landis, formerly supervisor of the antenna research and development laboratories of Douglas Aircraft Company, has

Vern Landis

been made sales manager of **Ta-Mar, Inc., Culver City, California.**

Raymond P. Russell has been appointed assistant sales manager of **B. F. Goodrich Flooring Company, Watertown, Massachusetts.** Mr. Russell moves to his new position from the B. F. Goodrich Industrial Products Company, where he has been Boston district manager since 1949.

R. L. Pflieger Co., San Carlos, California, has announced their appointment as sales engineering representatives for **Statham Development Corporation** and **Rheem Manufacturing Company,** Electronics Division, in the territory of northern California and Nevada.

Vulcan Containers Inc., Bellwood, Illinois, has appointed Lawrence M. Ferguson, sales manager, as vice president of

L. M. Ferguson

sales. A 19-year veteran of the firm, Mr. Ferguson became assistant sales manager in 1950 and sales manager in 1956. Eugene W. Gehm has been promoted to assistant sales manager. Mr. Gehm previously had been a senior sales representative for the past 11 years.

Robert E. Lyon has been appointed sales manager of the Manufacturing Division of **Precision Steel Warehouse, Inc., Down-**

R. E. Lyon

ers Grove, Illinois. This step will assure company customers of better service and closer sales aid for Precision Brand products.

Suppliers in the News

James R. Strother has joined **Flexonics Corporation, Maywood, Illinois,** as assistant sales manager for industrial hose products. Mr.

J. R. Strother

Strother will head the company's national sales program for metal, synthetic rubber and plastic hose products to manufacturers of original equipment in the agricultural, construction and general industrial fields.

Appointment of James E. Shondel to the position of Government sales manager, has been announced by the **International Re-**

James E. Shondel

search and Development Corporation, Columbus, Ohio. A graduate of Ohio State University in Industrial Engineering, and of Franklin University in Law, Mr. Shondel comes to the firm from Air Force Procurement. A professional engineer's license, a pilot license, a member of the Ohio Bar, and three years in the Corps of Engineers, provide him the varied background required for his new position.

Roll Formed Products Company, Youngstown, Ohio, producers of roll formed metal shapes and tubing, has appointed Jack E. S. Thompson as sales representative in North Texas. Thompson will contact fabricators from his headquarters in the White Rock Building, 10223 Garland Ave., Dallas 18, Texas.

James T. Irvine has been named general sales manager for the **Little Big Inch Division of Texas Eastern Transmission Corpora-**

J. T. Irvine

tion, Shreveport, Louisiana. Mr. Irvine has more than 25 years experience in the petroleum marketing and distribution industry. He will be in charge of all sales activities of the division, extending from the Gulf coast, midcontinent area to the Midwestern markets.

Phillips W. Berg has been made regional sales manager of **Tuthill Pump Co., Chicago, Ill.** Mr. Berg will have charge of the company's sales organization in Indiana, Michigan, Ohio, Western Pennsylvania and Kentucky.

M. W. Hartman has been named sales manager of the Darcova Division by **Darling Valve & Manufacturing Company, Williamsport,**

M. W. Hartman

Pennsylvania. This is a newly created post for the sale of Darcova valve cups, seating cups, seating rings and pumcups. Mr. Hartman has been associated with the company as district sales engineer in the Mid-West area since 1946.

Colton Chemical Company, a Division of Air Reduction Company, Inc., Cleveland, Ohio, has named James K. Ames central

James K. Ames

district manager. Mr. Ames started his association with the company as technical service representative. In 1954 he opened the company district sales office in Chicago.

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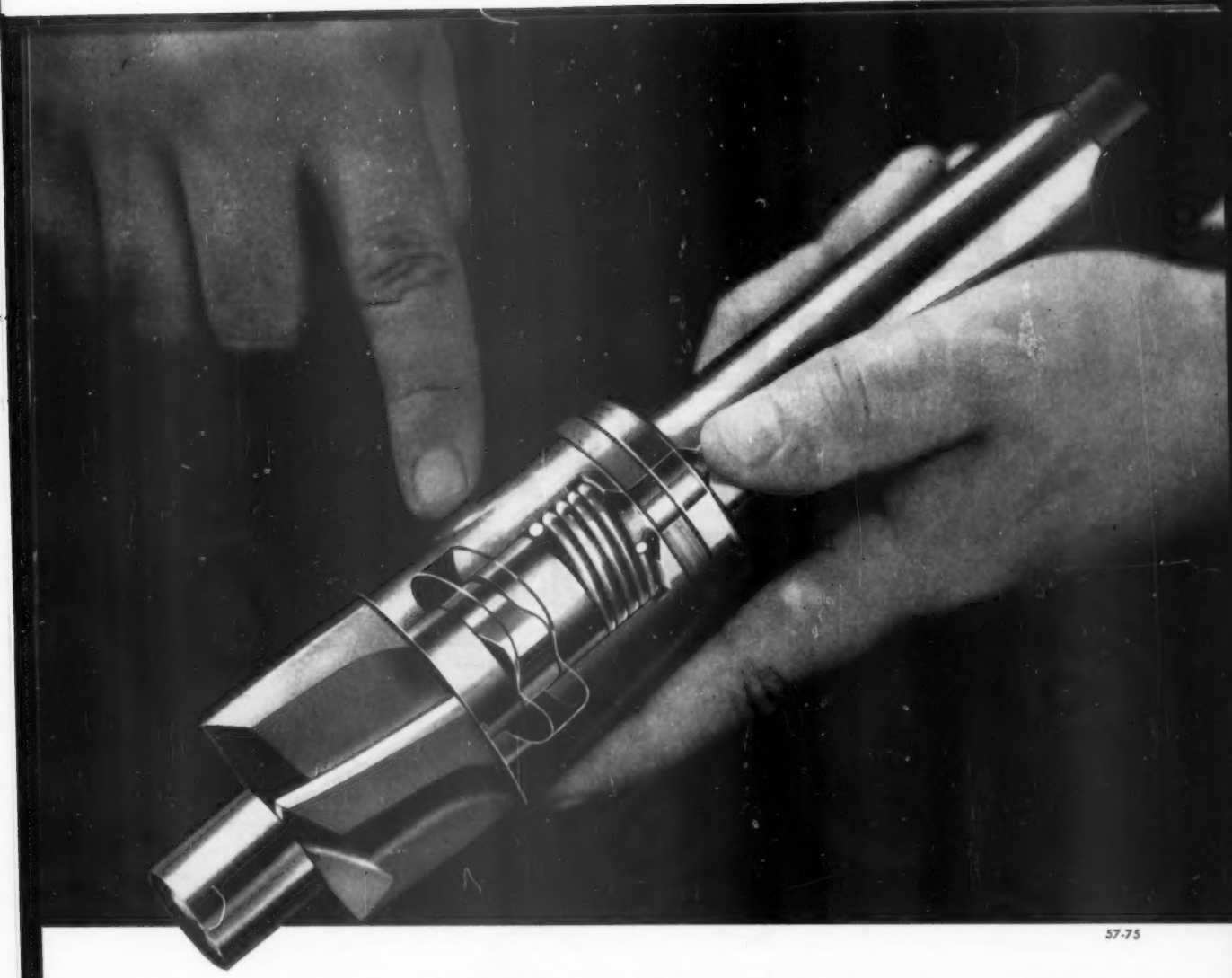


57-75

Here's Why Continental Counterbore Drives

Never Bind! Never Fail!

Continental Counterbores operate precision smooth and detach with a *twist of the wrist* because the driving forces generate *compressing* not *shearing action* in the holder. They *never* bind, deliver long-lasting, trouble-free operation.

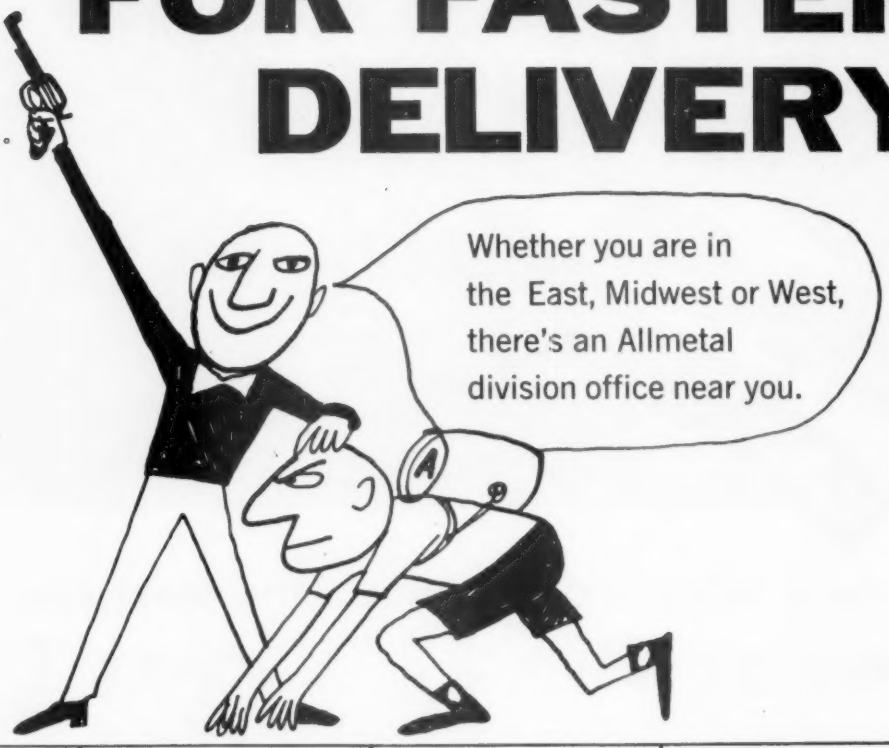
In Continental Counterbores, you get extra torsional rigidity because drive lugs are close to the seating shoulder of the cutter. Double lugs on the cutter engage double abutments in the holder to form a powerful tool. But best testimony to the satisfaction you get from these counterbores is this: *no one has ever reported failure of a Continental Counterbore Drive!* For more information, call your local Ex-Cell-O Representative or write to Continental Tool Works in Detroit. Available individually or in a choice of three sets.

CTW Continental TOOL WORKS

DIVISION OF

EX-CELL-O CORPORATION, DETROIT 32, MICHIGAN

NOW! ALLMETAL LOCAL SERVICE FOR FASTER DELIVERY



There's no stock like the largest stock, and Allmetal has the largest stock of stainless steel fasteners in the world	Allmetal specializes in all types of stainless steel fasteners, screws, nuts, bolts, washers, rivets, pins, 'AN' fasteners, etc.	Batteries of cold headers and automatic screw machines ready to turn out special fasteners to your specifications.	And if you need stainless steel fasteners, fast!—Allmetal can deliver from stock within 24 hours

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MIDWEST DIVISION
5611 West Lake Street, Chicago 44, Illinois EStebrook 9-1700

WEST COAST DIVISION
2978 Wilshire Boulevard, Los Angeles 5, California DUnkirk 5-6357

manufacturers of stainless steel fasteners

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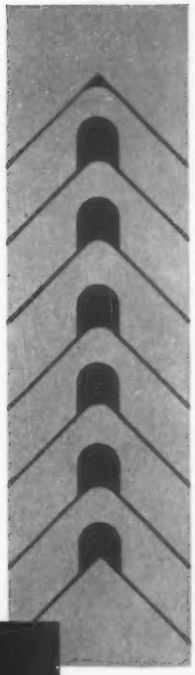
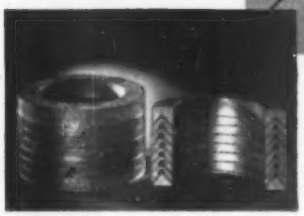




Garlock CHEVRON Packing
Set and cross section

CHEVRON®

is a registered trademark of The Garlock Packing Company. It is our responsibility as the manufacturer to see that this trademark is properly used at all times to identify our hinge-type packings. We, therefore, ask that it be used only to designate our product. It should never be used merely as a descriptive or generic term for V-type packings.

CHEVRON Packings are carefully manufactured in Garlock's own factories by experienced craftsmen. Therefore, whenever you see this familiar trademark you can be sure that the packings described will give you long dependable service because they are properly designed and manufactured to the highest quality standards.

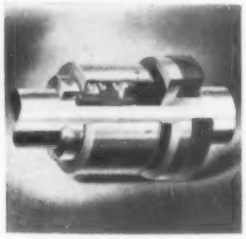
Other familiar registered trademarks belonging to Garlock include: BITAN Leather Packings, GUARDIAN Gaskets, KLOZURE Oil Seals, LATTICE BRAID Packings and MECHANIPAK Mechanical Seals. All of these products are sold to you under the Garlock Warranty . . . your assurance that they will satisfactorily perform the service for which they are designed.

THE GARLOCK PACKING COMPANY, Palmyra, N.Y.
For prompt service, contact one of our 30 sales offices and warehouses throughout the U.S. and Canada.

GARLOCK

Packings, Gaskets, Oil Seals, Mechanical Seals, Molded and Extruded Rubber, Plastic Products

Garlock BITAN Leather Cups, Packings and Gaskets



Garlock MECHANIPAK Mechanical Seal

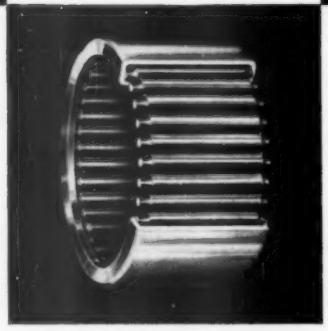
Garlock GUARDIAN Spiral-Wound Gasket

Garlock KLOZURE Oil and Grease Seals for Bearings

Garlock LATTICE-BRAID Rod and Shaft Packings

For More Information Write No. 193 on Inquiry Card—Page 32

Among significant savings Torrington Needle Bearings bring to office equipment are simpler, more compact design, lower unit cost, easier assembly and long service life.



The savings add up fast!

Streamlining office procedures with modern business equipment pays off in hours and days saved. There are big savings, too, when Torrington Needle Bearings are used to eliminate friction in vital moving parts.

For the purchaser, high-capacity Torrington Needle Bearings mean sensitive response, maintenance-free operation and long service life. For the manufacturer, they mean more compact anti-friction assemblies which contribute to simpler, less costly design; quicker, easier bearing installation and assembly; and lower unit cost per bearing.

These savings add up fast, not only in office machines, but in all kinds of equipment used in the home, in business, in industry, on our highways and farms. Why not look into the savings possible in your own equipment? Your Torrington representative will be glad to show you the engineering "ways and means." **The Torrington Company, Torrington, Conn.—and South Bend 21, Ind.**

TORRINGTON BEARINGS

District Offices and Distributors in Principal Cities of United States and Canada

NEEDLE • SPHERICAL ROLLER • TAPERED ROLLER • CYLINDRICAL ROLLER • BALL • NEEDLE ROLLERS • THRUST

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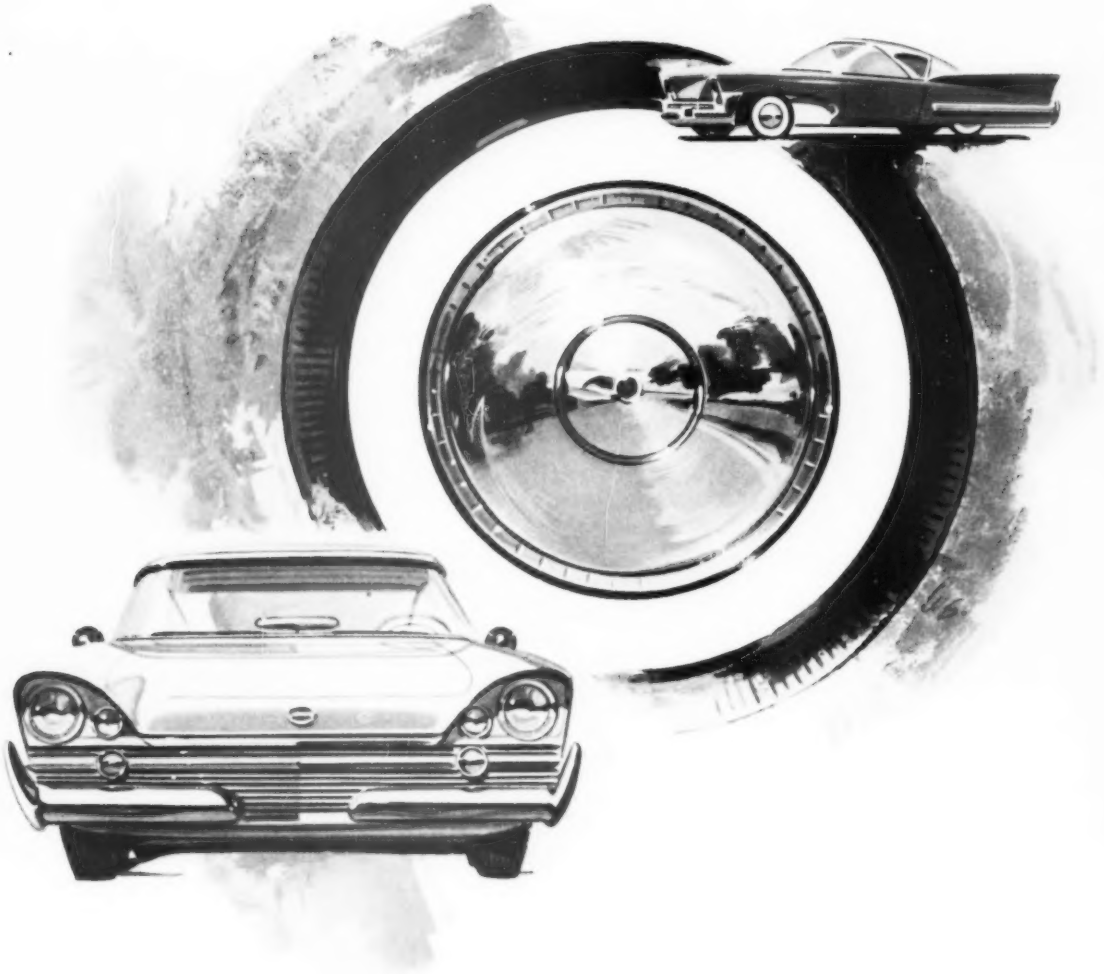


bright idea

For enduring beauty that sells in a new car and
re-sells in a used car . . . design it, improve it and protect it
with McLOUTH STAINLESS STEEL.

specify

McLOUTH STAINLESS STEEL

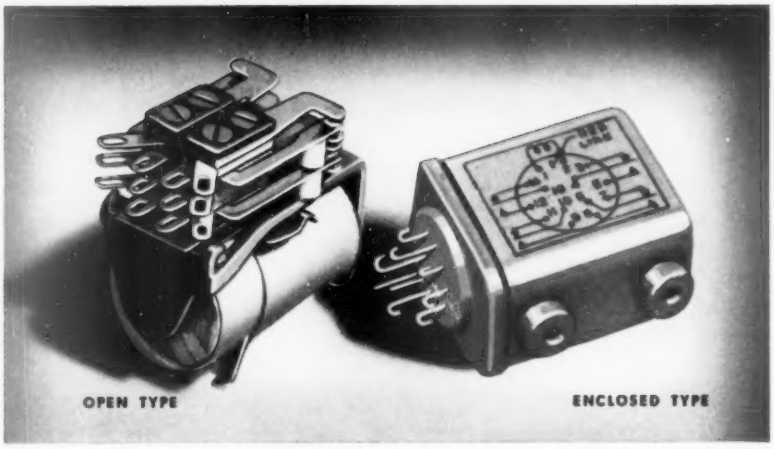
HIGH QUALITY SHEET AND STRIP

for automobiles

McLOUTH STEEL CORPORATION DETROIT, MICHIGAN

MANUFACTURERS OF STAINLESS AND CARBON STEELS

R-B-M Miniature Multipole Relays of Proven Reliability



Light weight, Small Size Open and Hermetically Sealed Types for Electronic and Communication Application

These R-B-M Relays were developed specifically for electronic application, where small size, light weight and reliability are prime factors. They meet commercial and government requirements.

They are available in open type, or hermetically sealed. Most of them can also be furnished with transparent plastic covers.

These proven designs are produced for switching low power circuits, low capacitance circuits and power circuits. 125° C insulation now available on some versions. Coils can also be designed for plate circuit application.

The many variations may well provide just the right relay for you at low cost, because they solve so many specific problems with no development or tooling charges to the customer.

Send for Descriptive Bulletin No. 1050

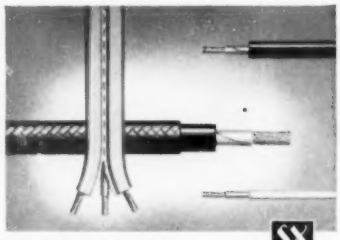
RBM®

RBM DIVISION

Manufacturers of Magnetic Controls and Devices / LOGANSPORT, INDIANA

*EE

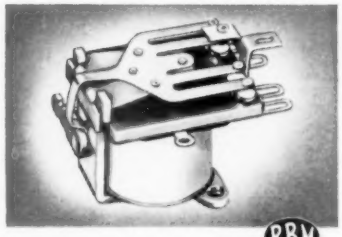
other outstanding
***ESSEX ENGINEERED**
production proven products



WIRE AND CABLE

A full "Extra Test" line of lead, test lead, appliance, automotive and refrigeration wires, plus submersible pump cable and 200° C. Sil-X insulations are examples of the versatility of "Essex Engineering".

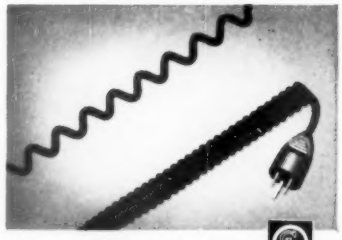
Wire and Cable Division
Fort Wayne, Ind.



MINIATURE RELAYS

The Type MS Miniature Sensitive Relay is ideal for any application requiring a compact, highly reliable single pole D. C. device, where a low cost solution is required because of volume usage and competitive problems. Request Bulletin No. MS-1.

R-B-M "Control" Division
Logansport, Ind.



COILED CORDS

The "spring" in Coiled Cords automatically synchronizes with moving components that are electrically powered. There are no looping, tangling cords in the way . . . because Coiled Cords extend and retract as needed. Write for new literature.

Cords Limited Division
DeKalb, Ill.

ESSEX WIRE CORPORATION

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Talk of the toolrooms!

New **SIMONDS**

SA *Borolon*®

TRADE MARK

GRINDING WHEELS

Faster, cooler grinding with heavier cuts

Exceptional for tool and cutter sharpening and horizontal surface grinding! Performance convincingly proved on tool-room grinders throughout industry. Unique single crystal formation of the abrasive cutting particles provides more stress-free cutting edges and permits cooler grinding, deeper penetration and better finish. Use SA Borolon wheels on *your* grinders. Get bulletin ESA 272 for details.

Use postpaid card. Circle No. 218

SIMONDS ABRASIVE CO.

SIMONDS ABRASIVE COMPANY

Division of Simonds Saw and Steel Co. • BRANCHES: PHILADELPHIA • CHICAGO • DETROIT • SHREVEPORT • LOS ANGELES • SAN FRANCISCO • PORTLAND, ORE.

CALL YOUR SIMONDS DISTRIBUTOR

Proven products
Dependable know-how
Quick supply

PHILLIPS OR SLOTTED
WOOD SCREWS
BY Southern

in STEEL, BRASS, SILICON BRONZE, ALUMINUM, STAINLESS STEEL
FLAT, ROUND or OVAL

Whenever you think of fasteners, think of Southern Screws—the precision-made screws with built-in quality. Every Southern Screw meets or exceeds Phillips Head Standard specifications as well as Federal Specifications.

Southern's stock of over one billion screws, plus four large warehouses (Chicago, New York, Los Angeles, Dallas) permits excellent service on your orders.

Wire or phone your requirements, or write Southern Screw Co., P. O. Box 1360, Statesville, N. C.

WOOD SCREWS • DOWEL SCREWS • HANGER BOLTS • DRIVE SCREWS • SPEAKER SCREWS • WOOD KNOB SCREWS • MACHINE SCREWS & NUTS • CARRIAGE BOLTS • A.B.C&F TAPPING SCREWS • STOVE BOLTS

Southern SCREW COMPANY
STATESVILLE • NORTH CAROLINA

For More Information Write No. 198
On Inquiry Card—Page 32

f.o.b. "filosofy of buying"

Stuart F. Heinritz

Paul Farrell and Dean Ammer

THE "new" PURCHASING you're reading, is of course just another forward step in the progress of the "old" PURCHASING. For over 40 years we've been trying to bring you the best purchasing information available to help you do a better buying job—and the current changes are just another step in that program.

But progress and success in any enterprise isn't a matter merely of physical change. It's people that make publishing, just as it's people that make purchasing. And with this, the first of our bi-weekly issues, we're proud and happy to bring you news about changes in the editorial team that will carry on PURCHASING's tradition of service and leadership.

Paul V. Farrell has been named **Editor,** succeeding **Stuart F. Heinritz,** who takes over the post of **Senior Editor.** Stu, whose name is a household word in purchasing circles, will serve in a consulting capacity and will continue to write editorials, articles and other features for the magazine. Paul, a 10-year veteran of the purchasing field, has assumed direction of all editorial activities.

Dean S. Ammer, formerly Technical Editor has been appointed **Executive Editor.** Dean, a former value analyst and buyer, is the author of some of the outstanding articles in the magazine in recent years. He will continue to write special reports and analyses in addition to carrying out new administrative responsibilities.

Harold C. Barnett and **Ned Kellogg,** formerly Associate Editors, have been appointed **Associate Managing Editors.** Both Ned and Hal, known to thousands of PURCHASING readers for their informative articles, will continue to write features while handling additional duties in seeing that the magazine is assembled and produced efficiently and on time.

Recent new additions to PURCHASING's staff whose work has been appearing in issues of the past few months include:

Hal Barnett

Ned Kellogg

Doug Francisco

C. D. "Doug" Francisco, Midwestern Editor, who joined the staff after 19 years with General Electric, most of them spent in purchasing and value analysis work; **Leonard Sloane, Assistant Editor,** who specialized in machine tools and metals while reporting for the Wall Street Journal; and **John H. Van Deventer, Assistant Editor,** an industrial engineer with a background of training in purchasing. In addition, we have engaged the services of a number of regional editorial representatives, who will report to us from the important industrial areas of the country. Their names appear on the masthead on page 5.

Rounding out our staff are **Adelaide Grady, Assistant Editor,** familiar to PURCHASING readers by her excellent editorial work for a number of years, and the nationally known **Washington Editor, A. N. Wecksler,** whose on-the-spot coverage of the nation's capitol has consistently ranked as one of our most popular features.

Leonard Sloane, John VanDeventer

As in the past, PURCHASING will continue looking for new ways to better serve its readers.

Now in the works is a PURCHASING Speakers Bureau. Association leaders periodically ask our editors for advice on programs. We will provide qualified speakers on specialized purchasing topics for Association programs.

A. M. Grady

A. N. Wecksler

Our special business is specials . . . special fabricated wire cloth parts made to your specifications. We save you time, we save you overhead, we save you production worries. And, you get a better part at a lower cost.

We weave our own cloth . . . your guarantee of quality components. We are fully equipped to do all necessary cutting, shaping, fitting, welding, soldering, punching, binding, etc.

For more information on this "One-Stop" Wire Cloth Parts Service, send for our latest Parts Catalog.

NEWARK for ACCURACY

Newark Wire Cloth COMPANY

351 VERONA AVENUE • NEWARK 4, NEW JERSEY

For More Information Write No. 199 on Inquiry Card—Page 32

"We cut Electrical Installation Costs and got better protection

. . . by installing Fusetron Fuses throughout our New Dairy Plant!"

William J. Oyala
ELECTRICAL SUPERVISOR
Fred Meyer Co. Portland, Oregon

Mr. Oyala continues . . .

"In our new dairy plant in Portland, Fusetron dual-element fuses saved us about $800 by enabling us to use the proper switch sizes for the motor disconnects. This was possible because the long time-lag of Fusetron fuses permitted us to install them in smaller sizes than would have been possible with ordinary fuses.

"In addition, we were able to reduce the space required by the control centers.

"The Fusetron fuses were installed in sizes small enough to give us motor-running protection as well as motor branch circuit protection.

"The result of this has been the prevention of motor burnouts. Not once in the past year of operation has a Fusetron fuse failed to protect a motor. We have 138 motors, ranging from 1/40 H.P. to 100 H.P., and all are protected by Fusetron fuses.

"Both Mr. Eric Christenson, whose company contracted the electrical work, and myself believe that by installing Fusetron fuses throughout our entire plant we got top protection at a cost lower than could have been obtained by any other method."

FUSETRON DUAL-ELEMENT FUSES PROVIDE SAFER, MORE DEPENDABLE PROTECTION

Only Fusetron fuses provide 10 point protection—not possible with any other type of protective device.

Thus, wherever a Fusetron fuse is installed you have safety as sure and dependable as you can buy—no matter what you pay.

AND FUSETRON FUSES REMAIN SAFE THROUGH THE YEARS . . . NO MAINTENANCE COSTS

Once properly installed Fusetron fuses are maintenance free. They require no costly inspection or downtime for calibration and other maintenance necessary on mechanically operated devices.

Dust, fumes, corrosion or age cannot prevent a Fusetron fuse from opening safely. There are no hinges, pivots or contacts to stick or slow down the operation of the fuse on short-circuit.

NO RECALIBRATION COSTS

When a Fusetron dual-element fuse does blow, there is no recalibration needed. As quickly as the fault in the circuit is corrected, you slip in a new fuse. The new Fusetron fuse is just as it came from the factory—accurately calibrated—and ready to give the same safe, dependable, coordinated protection as did the one it replaced.

FOR LOADS ABOVE 600 AMPS.—USE BUSS Hi-Cap FUSES to coordinate with FUSETRON Fuses.

On 600 volts or less, BUSS Hi-Cap fuses have an interrupting capacity sufficient to handle any fault current regardless of system growth.

They can be coordinated with Fusetron fuses on feeder and branch circuits to limit fault outage to circuits of origin.

Write for bulletin HCS.

For more information on FUSETRON dual-element Fuses . . . Write for bulletin FIS.

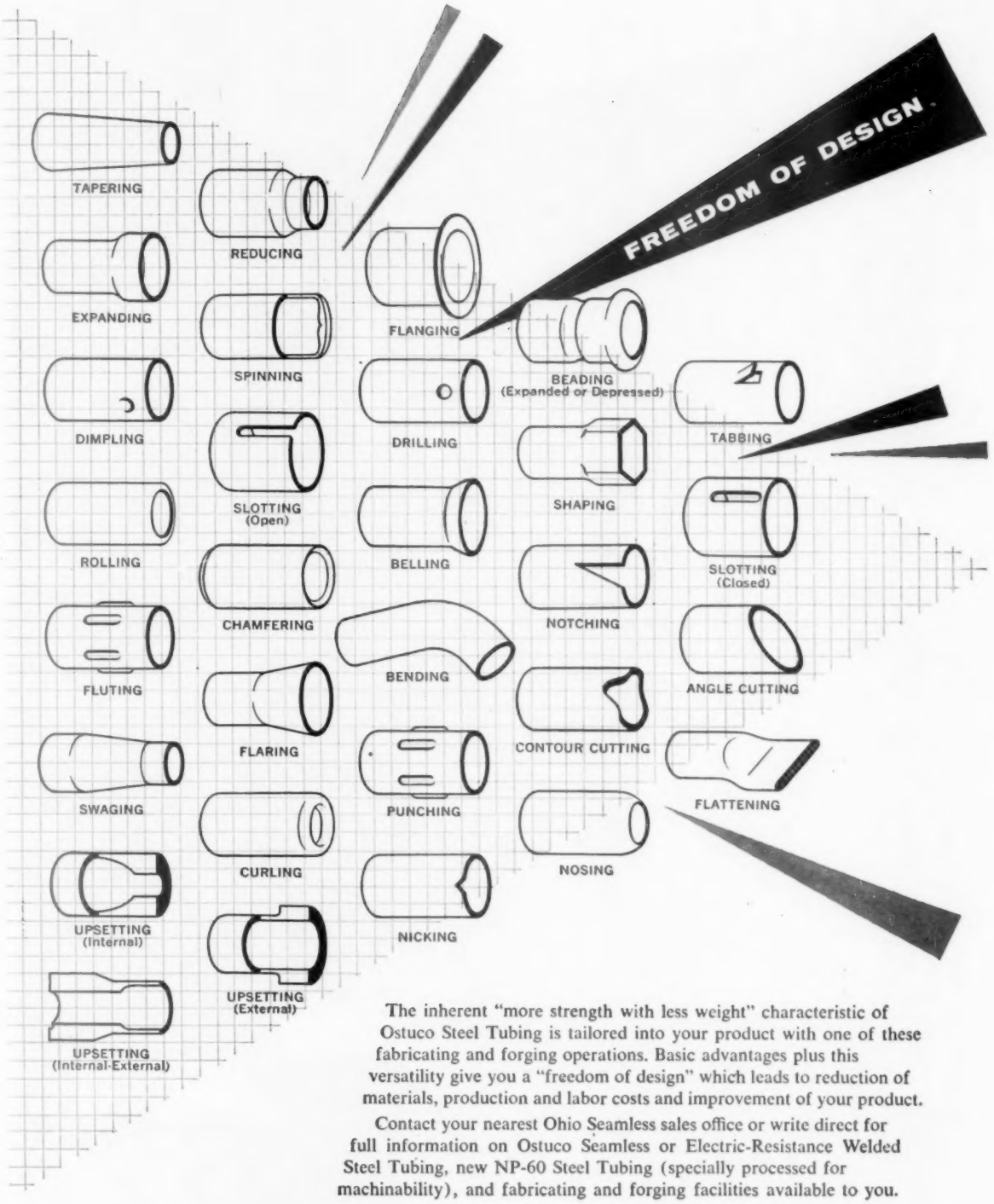
BUSSMANN MFG. DIVISION *McGraw-Edison Co.*
University at Jefferson, St. Louis 7, Mo.

NATIONAL ELECTRICAL WEEK
FEB. 9-15, 1958

Play Safe! Install Fusetron dual-element fuses and BUSS Hi-Cap Fuses throughout entire Electrical System!

FUSETRON
TRUSTWORTHY NAMES IN ELECTRICAL PROTECTION
BUSS

For More Information Write · No. 201 on Inquiry Card—Page 32



The inherent "more strength with less weight" characteristic of Ostuco Steel Tubing is tailored into your product with one of these fabricating and forging operations. Basic advantages plus this versatility give you a "freedom of design" which leads to reduction of materials, production and labor costs and improvement of your product.

Contact your nearest Ohio Seamless sales office or write direct for full information on Ostuco Seamless or Electric-Resistance Welded Steel Tubing, new NP-60 Steel Tubing (specially processed for machinability), and fabricating and forging facilities available to you.

OSTUCO TUBING

MANUFACTURED IN

SHELBY, OHIO

EXCLUSIVELY BY

OHIO SEAMLESS TUBE DIVISION

OF COPPERWELD STEEL COMPANY

SHELBY, OHIO • Birthplace of the Seamless Steel Tube Industry in America

SEAMLESS AND ELECTRIC-RESISTANCE WELDED STEEL TUBING • FABRICATING • FORGING

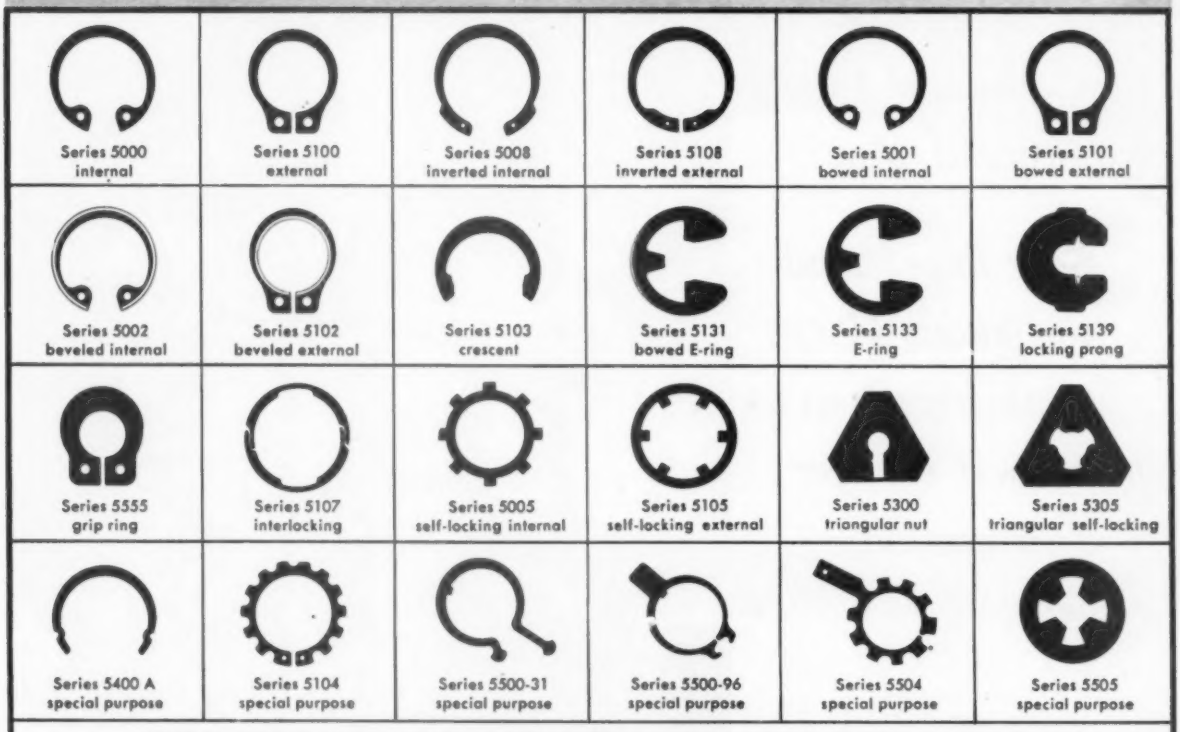
SALES OFFICES: *Birmingham • Charlotte • Chicago (Oak Park) Cleveland • Dayton • Denver • Detroit (Ferndale) • Houston Los Angeles (Lynwood) • Moline • New York • North Kansas City • Philadelphia (Wynnewood) • Pittsburgh • Richmond Rochester • Salt Lake City • Seattle • St. Louis • St. Paul St. Petersburg • Tulsa • Wichita*

CANADA: *Railway & Power Engr. Corp., Ltd.*

EXPORT: *COPPERWELD STEEL INTERNATIONAL COMPANY, 225 Broadway, New York 7, New York*

For More Information Write No. 202 on Inquiry Card—Page 32

6 Reasons why Waldes Truarc is your one dependable source for retaining rings



WHATEVER YOU MAKE, THERE'S A WALDES TRUARC RING DESIGNED TO SAVE YOU MATERIAL, MACHINING AND LABOR COSTS

COMPLETE SELECTION—All your retaining ring requirements can be obtained from this one dependable source. Waldes Truarc rings are available in 36 functionally different types... as many as 97 standard sizes within a ring type ... 5 metal specifications and 14 different finishes.

MANUFACTURING EXPERIENCE—Waldes Truarc pioneered precision retaining rings. Truarc Rings have been standardized by leading U. S. industries and Government agencies. Waldes Kohinoor, Inc. has over 50-years experienc in inventing, developing, and manufactusing precision fasteners..

QUALITY CONTROL—Every step in the manufacture of Waldes Truarc rings—from engineering and raw materials through to the finished product—is carefully controlled and tested in our own modern plant. Truarc standards are the highest in the industry—your guarantee of consistent, uniform quality.

DESIGN SERVICE—For help in designing new products or in refining present designs, send your blueprints to Waldes Truarc engineers. Whether your product requires standard or custom-designed rings, these experts are ready to help you. They will also design special assembly jigs and fixtures—or even help you set up an automation assembly operation.

FIELD ENGINEERING SERVICE—More than 30 engineering-minded factory representatives and 700 field men are available to you on call! This engineering service can prove invaluable in helping you to solve design, assembly and production problems.

DISTRIBUTION—Truarc rings are available from leading OEM Distributors in 90 stocking points throughout the United States and Canada.

WALDES TRUARC® RETAINING RINGS

WALDES KOHINOOR, INC.
LONG ISLAND CITY 1, NEW YORK

WALDES TRUARC Retaining Rings, Grooving Tools, Pliers, Applicators and Dispensers are protected by one or more of the following U. S. Patents: 2,382,948; 2,411,426; 2,411,761; 2,416,852; 2,420,921; 2,428,341; 2,439,785; 2,441,846; 2,455,165; 2,483,379; 2,483,380; 2,483,383; 2,487,802; 2,487,803; 2,491,306; 2,491,310; 2,509,081; 2,544,631; 2,546,616; 2,547,263; 2,558,704; 2,574,034; 2,577,319; 2,595,787, and other U. S. Patents pending. Equal patent protection established in foreign countries.

For More Information Write No. 203 on Inquiry Card—Page 32

Been using that new gummed tape we ordered, Mac?

Sure have! And you know, I think it's about the best we ever used around here!

Want me to order it for you again?

Yeah, I do. Let's see, I think it's called "Safetex"!

The easiest way to *make* money is by *saving* money. You can do just that by ordering Safetex for your Shipping Department. Safetex cuts application costs, increases shipping room efficiency.

SAFETEX SUPERSTANDARD GUMMED TAPE

CENTRAL PAPER COMPANY · MENASHA, WISCONSIN

For More Information Write No. 204 on Inquiry Card—Page 32

For More Information Write No. 207 on Inquiry Card—Page 32→

For More Information Write No. 203 on Inquiry Card—Page 32

The Secret of Mass Producing Intricate Springs...

Mid-Continent Spring Co. men, machines and Keystone Wire make difficult jobs easy!

There's no secret to mass producing complicated springs at Mid-Continent Spring Company, St. Louis, Mo. Experience – ingenuity – specially designed spring machines – and Keystone MB Hard Drawn Wire – combine to produce hitherto impossible or impractical springs. At this progressive firm's modern factory you'll find incredibly intricate spring machines performing multiple operations at high speed, producing everything from hair springs to springs for heavy machinery.

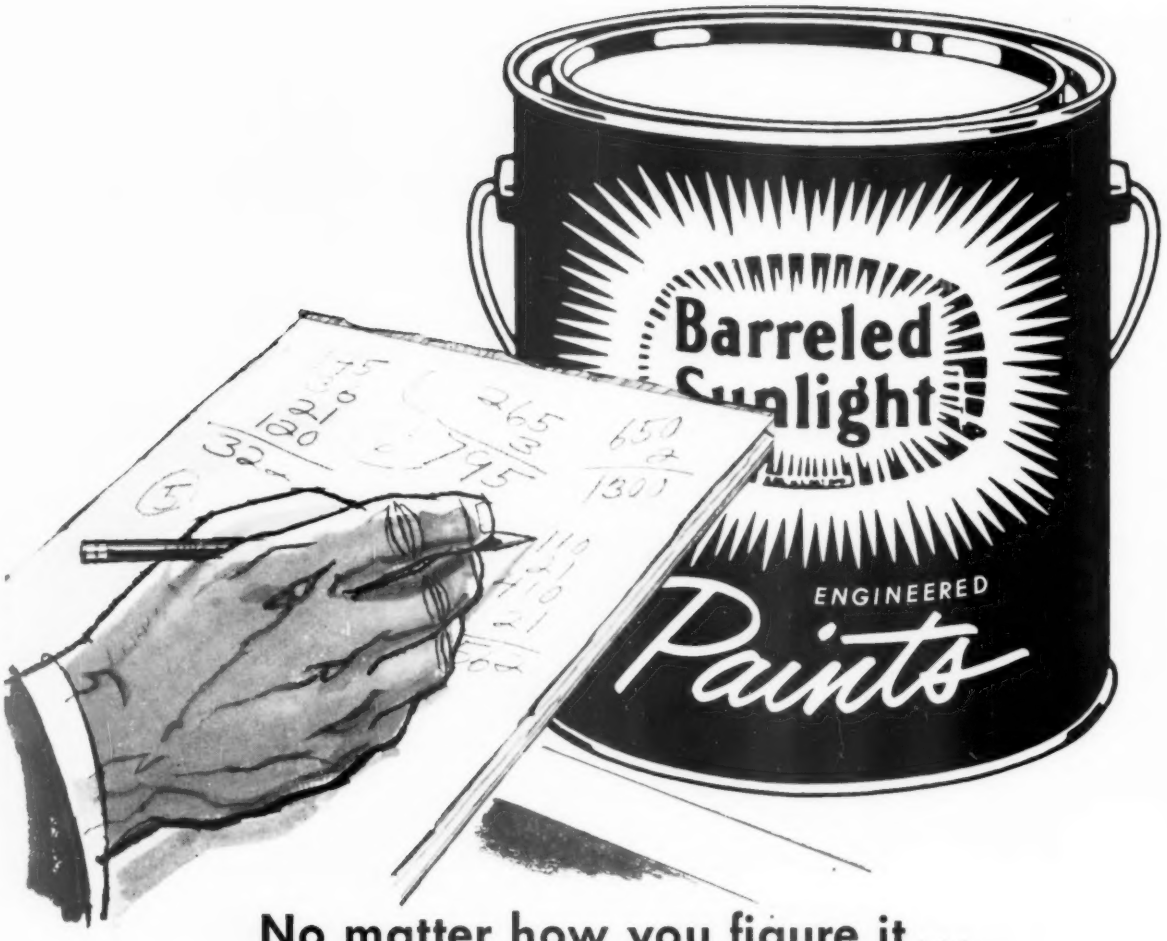
An important part of the secret to successful spring manufacture is the selection of a quality wire – and here's how Mid-Continent feels about Keystone Wire. "We like Keystone Wire for its uniformity, true roundness and absolute tensile. For instance, on a recent run of 125,000 lbs., less than 1/10 of 1% did not meet our critical specifications."

The excellent performance of Keystone MB Spring Wire *is* due to its consistent uniformity of composition, temper and diameter. Keystone MB Spring Wire is also available in drawn galvanized and copper coated finishes, as well as spheroidized annealed temper.

For the difficult shapes and springs – as well as for the easy jobs – Keystone Wire can assure you steady production and fewer rejects. Your Keystone Wire Specialist, backed by a skilled metallurgical staff, will gladly help you solve your wire problems. Call us . . . today!

Keystone Steel & Wire Company
Peoria 7, Illinois

KEYSTONE
WIRE FOR INDUSTRY



No matter how you figure it...
THIS PAINT WILL SAVE YOU MONEY!

Some paints may cost you less per gallon than Barreled Sunlight, *but you can't buy a paint that will cost you less "on the wall."* Compare it yourself with any other paint, and here's what your figures will show you:

MONEY SAVED ON PAINT because Barreled Sunlight is *engineered* to hide better and cover more square yards per gallon. This means fewer gallons to do the same job.

MONEY SAVED ON LABOR (which today takes at least 80¢ of every painting dollar) because Barreled Sunlight is engineered for faster, easier application and does the job better in *one* coat than ordinary paints take two coats to do.

MONEY SAVED OVER THE YEARS because Barreled Sunlight is engineered to keep its fresh-painted look longer . . . and because it's made by *specialists* in heavy duty paints with the 100-year "know-how" to deliver the right paint for every job even under the most severe service conditions.

Save with an "ON-THE-WALL" Test

If you're looking to save real money on a better paint job, write today for full information on Barreled Sunlight's famous "on-the-wall" test. We'll rest our case on what your eyes will see! Address Barreled Sunlight Paint Company, 18A Dudley St., Providence 1, Rhode Island.

Barreled Sunlight ENGINEERED Paints®

FOR A BETTER LOOKING, LONGER LASTING PAINT JOB AT LOWER COST

See you at the Plant Maintenance and Engineering Show — Booth 510, Jan. 27-30 — Chicago

For More Information Write No. 208 on Inquiry Card—Page 32

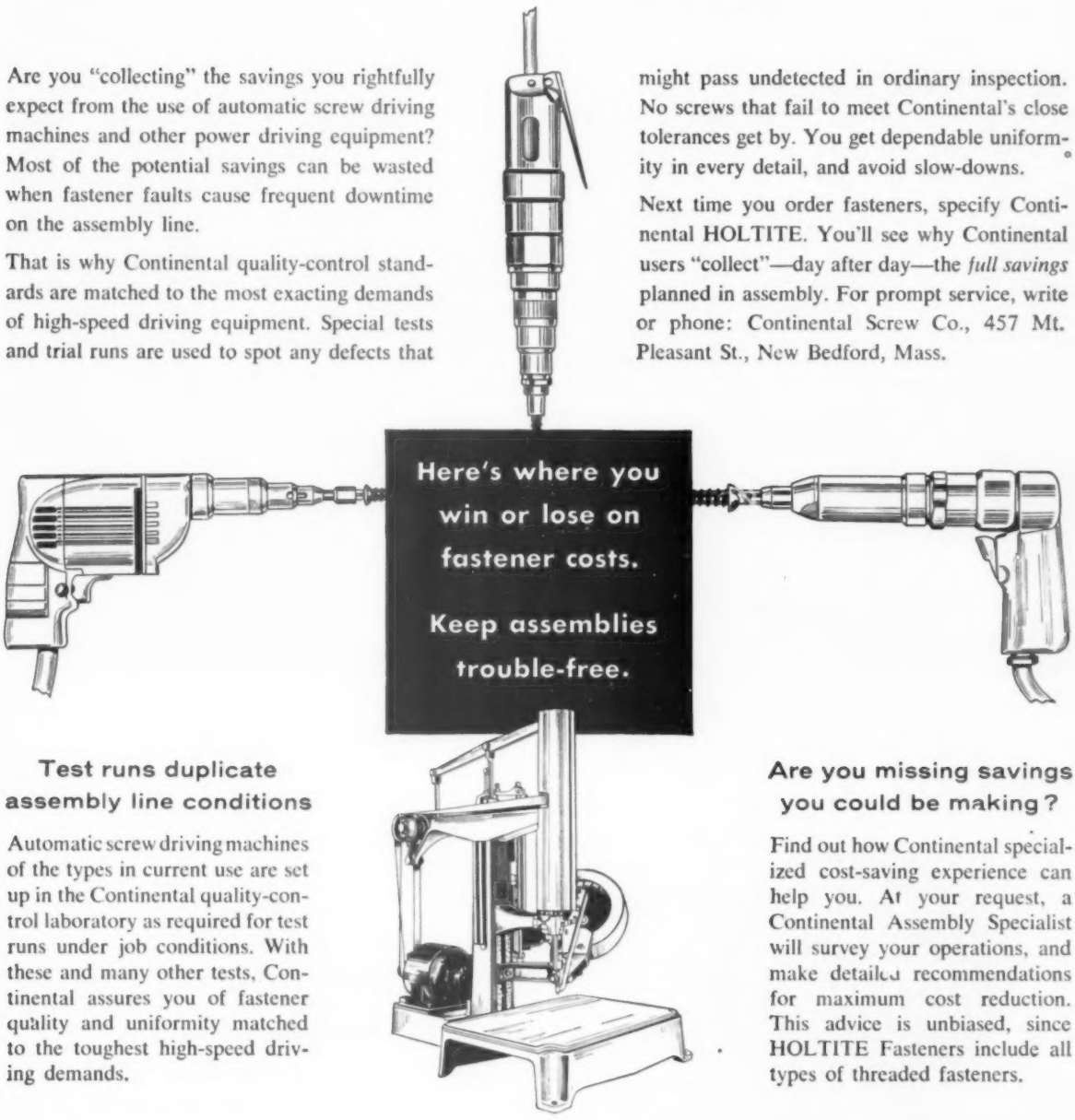
Continental sets quality standards to **make high-speed driving pay off**

its full potential in savings

Are you "collecting" the savings you rightfully expect from the use of automatic screw driving machines and other power driving equipment? Most of the potential savings can be wasted when fastener faults cause frequent downtime on the assembly line.

That is why Continental quality-control standards are matched to the most exacting demands of high-speed driving equipment. Special tests and trial runs are used to spot any defects that might pass undetected in ordinary inspection. No screws that fail to meet Continental's close tolerances get by. You get dependable uniformity in every detail, and avoid slow-downs.

Next time you order fasteners, specify Continental HOLTITE. You'll see why Continental users "collect"—day after day—the *full savings* planned in assembly. For prompt service, write or phone: Continental Screw Co., 457 Mt. Pleasant St., New Bedford, Mass.



Test runs duplicate assembly line conditions

Automatic screw driving machines of the types in current use are set up in the Continental quality-control laboratory as required for test runs under job conditions. With these and many other tests, Continental assures you of fastener quality and uniformity matched to the toughest high-speed driving demands.

Are you missing savings you could be making?

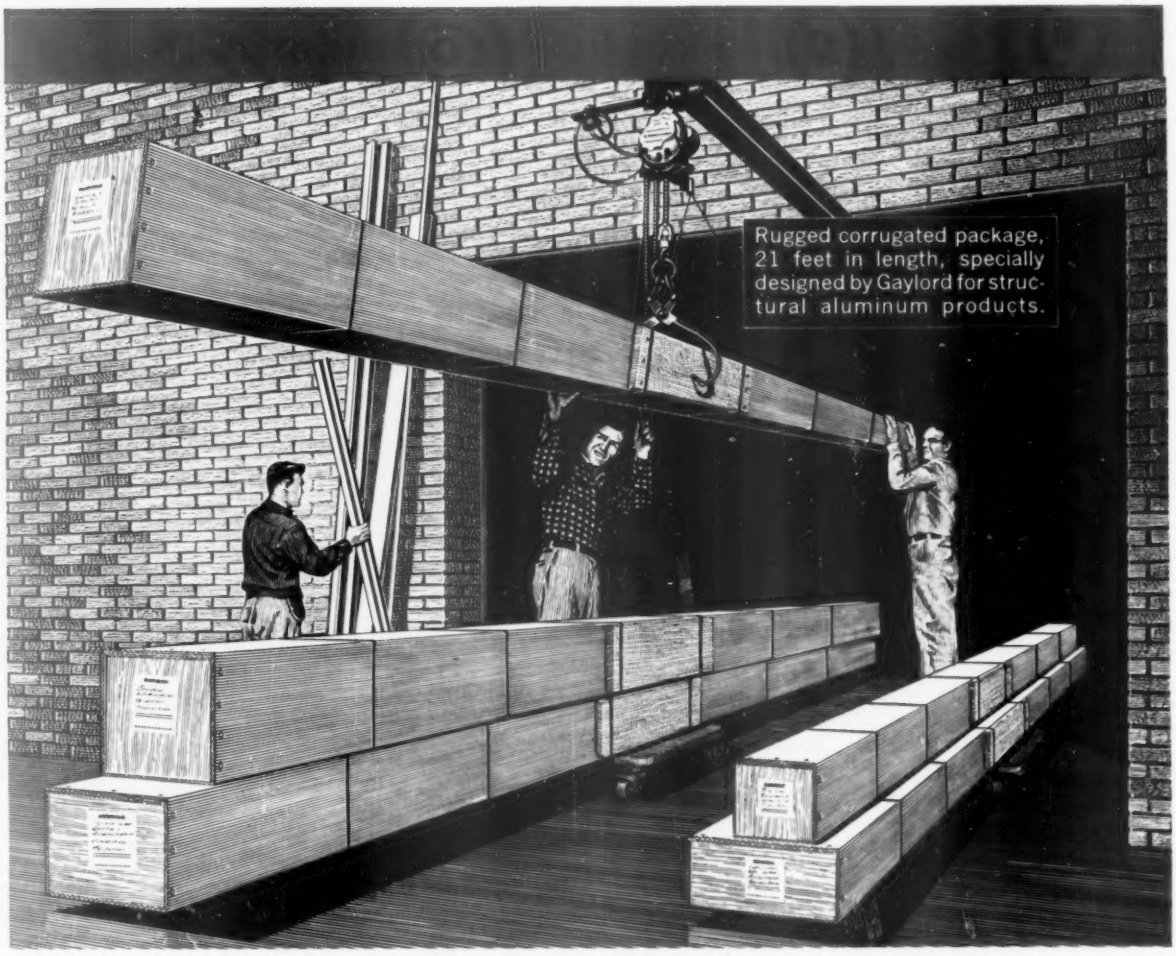
Find out how Continental specialized cost-saving experience can help you. At your request, a Continental Assembly Specialist will survey your operations, and make detailed recommendations for maximum cost reduction. This advice is unbiased, since HOLTITE Fasteners include all types of threaded fasteners.

MEMBER
SCREW RESEARCH
ASSOCIATION

CONTINENTAL
HOLTITE FASTENERS

HOLTITE PHILLIPS AND SLOTTED HEAD
WOOD • MACHINE • TAPPING • THREAD-FORMING • SEMS • NYLOK
HY-PRO PHILLIPS INSERT BITS AND HOLDERS

For More Information Write No. 209 on Inquiry Card—Page 32



CHEAPER FOR THE "LONG HAUL"

For the long or short of it, whatever your packaging needs, put Gaylord engineering ingenuity to work for you.

This manufacturer, for example, reduced costs three ways with Gaylord-designed corrugated shippers. Initial cost is lower than former packaging; one-step packing operation saves time; reduced tare weight saves shipping charges.

Call your nearby Gaylord engineer. He's backed by the finest packaging experience and research facilities in the industry.

Gaylord Boxes

CORRUGATED AND SOLID FIBRE BOXES • FOLDING CARTONS • KRAFT PAPER AND SPECIALTIES • KRAFT BAGS AND SACKS

GAYLORD CONTAINER CORPORATION ★ ST. LOUIS

DIVISION OF Crown Zellerbach Corporation

For More Information Write No. 210 on Inquiry Card—Page 32

For More Information Write No. 209 on Inquiry Card—Page 32

PURCHASING and the Profit Squeeze

THIS IS THE SEASON for all sorts of business forecasts — and a season of confusion for the business man who tries to reconcile these varied and often divergent opinions of the pattern of the future. The fifth annual Conference on the Economic Outlook, held recently at the University of Michigan, performed a notable service in bringing together 108 of the nation's leading university economists and professional business analysts and developing a composite opinion.

Among other conclusions, there was virtually complete agreement on two important points:

1. Industrial activity will continue at a high rate in 1958, with gross national product, the dollar value of all goods and services, remaining close to its present level of $439 billion. (There were four dissenters who foresee a moderate but steady decline. On the other hand, there were five who foresee a steady rise.)

2. Corporation profits are expected to decline by about 3% despite the high volume of sales and production.

This is a familiar pattern. The profit squeeze is still on, and there is apparently very little that sales and production effort can do about it. The answer must be found on the cost side of the ledger.

So, once again, the spotlight is on purchasing for 1958. Industry's profit potential lies more and more in the areas of value buying and cost reduction. The purchasing agent can be the key man in attaining management's profit goals.

No reasonable management will expect its purchasing department to reverse major economic trends or to wring uneconomic price concessions from equally hard pressed suppliers. But far-sighted, profit-wise management will see to it that its purchasing department is a strong one. It will provide the facilities for purchasing research. And it will listen with an open mind to purchasing department policy proposals.

Purchasing can be a profit making function.

Stuart F. Heinritz

WHAT'S AHEAD...

in steel service and supply

New Steels—1958 will peak 1957 by the addition of scores of new sizes and types of steel. Stocked for ready shipment from strategically located Ryerson plants are such new products as:

- **Pre-painted Steel** . . . cold-rolled coils, in color choices, widths from ¾″ to 42″, gauges .006″ to .035″.
- **New Tubing** . . . hot finished carbon steel in wall thicknesses up to 1½″, O.D. sizes up to 12¾″.
- **Alloy Rebars** . . . reinforcing steel with high-yield point for space saving.
- **Alloy Plates** . . . hot rolled 8620 in 16 sizes, and hot rolled annealed 4140 in 19 sizes, thicknesses up to 5″, widths up to 84″.

These represent only a sample of the many additions in stock . . . and coming during 1958.

New Quality Safeguards—Already known for controls that protect you on every purchase, Ryerson is further revising and tightening its quality control program across the entire range of products. For example, new closer cutting tolerances are being established; specifications are being reviewed, and all phases of Ryerson service are being more exactly tailored to your needs.

Stepped-Up Service—To meet growing demand, new Ryerson plants have just been opened at Indianapolis and Charlotte . . . modernization and expansion programs are completed or under way at Los Angeles, Pittsburgh, St. Louis, Buffalo and Spokane.

1958 promises steel users further improvements in Ryerson plants and facilities. Delivery records, such as shipping five out of every six orders within 24 hours, and 60-minute emergency order handling will continue to assure you of getting exactly what you need *when* you need it.

As close as your telephone, you'll find a wider range of steel stocks . . . controlled high quality . . . dependable service that goes beyond the material itself. So, as you look ahead into 1958, it will pay you to include Ryerson in your plans.

RYERSON CERTIFIED QUALITY

RYERSON STEEL

Member of the INLAND Steel Family

Principal Products: Carbon, alloy and stainless steel—bars, structurals, plates, sheets, tubing—aluminum, industrial plastics, metalworking machinery, etc.

JOSEPH T. RYERSON & SON, INC. PLANTS AT: NEW YORK • BOSTON • WALLINGFORD CONN. • PHILADELPHIA • CHARLOTTE • CINCINNATI • CLEVELAND DETROIT • PITTSBURGH • BUFFALO • INDIANAPOLIS • CHICAGO • MILWAUKEE • ST LOUIS • LOS ANGELES • SAN FRANCISCO • SPOKANE • SEATTLE

For More Information Write No. 211 on Inquiry Card—Page 32

An Important Announcement From the Publisher

ALMOST EVERY day we write someone a letter explaining just what PURCHASING Magazine is and what its "objectives" are. We're asked for this information by all kinds of people and groups —college professors and free-lance writers, advertising agencies and market researchers, journalism students and purchasing recruits.

The wording of the answers vary—but the basic idea is always the same. And I think there's no better way to sum it up than in the pledge made in our very first issue, over 43 years ago:

Everything we do or print is calculated to instruct, improve and interest purchasing agents.

That's the test applied to everything that goes into this magazine—whether it's an advertisement, a feature article, or a small news item. And we're proud of the fact that this policy and practice have helped the purchasing agent achieve the high status he has in industry today —a status dramatized by the sudden burst of attention he's getting from every quarter, including several that used to scorn him.

Now we're happy to announce one of the most important developments in our almost half-century of service to the purchasing profession:

Beginning with this issue PURCHASING Magazine will be published every other Monday. Instead of 12 monthly issues every year, you'll be receiving 26 issues.

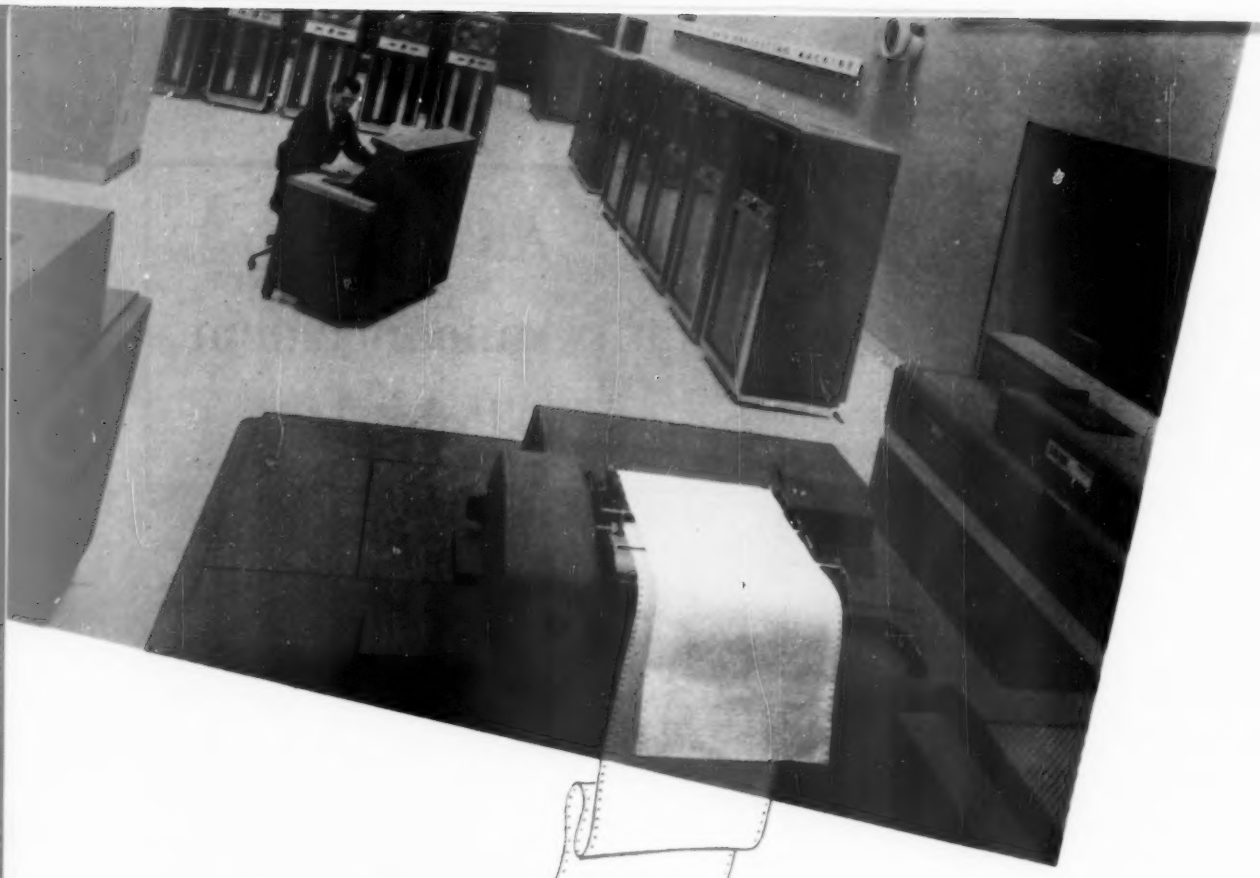
And in back of every single issue will be the same high standards of quality and traditions of service to the profession that has earned PURCHASING top rank among business publications.

These are just a few of the broadened services we will be able to give you under the new arrangement—services we know will help to "instruct, improve and interest" you:

- More and better articles on purchasing methods and policies. Included will be special studies on outstanding purchasing departments both large and small; article series by leading authorities on such subjects as Inventory Control, Buying Fabricated Parts, Legal Phases of Purchasing, Traffic and Transportation, Materials Management in the Small Company, How to Write a Purchasing Manual, and many others.
- A special group of articles on fundamentals of purchasing by Senior Editor Stuart F. Heinritz, whose writings and textbooks have been indispensable aids in training thousands of purchasing people.
- An improved Pulse of Business Section, one of the most popular features in the magazine. This monthly analytical report on economic trends will be supplemented by Purchasing Previews, a round-up of economic news pertinent to purchasing agents, which will appear in every other issue. Pulse of Business starts in this issue on Page 7. Look for it in the same spot every other issue. Purchasing Previews will alternate with it in the same position.
- All the other regular departments that have made PURCHASING a must for all purchasing people—the comprehensive coverage of activities of the National Association of Purchasing Agents, news of important personnel changes in industry, news of suppliers, new products and catalogs, office equipment and supplies section, and significant developments in industry.

We're quite excited about this change and the challenge it offers us to keep you supplied with the best purchasing material available. I hope you'll look this issue and subsequent issues over carefully to see what we've done to improve our services to you. And please let me know how you feel about the new bi-weekly PURCHASING and what suggestions you have that will help it pace purchasing's progress.

Ray Richards
Publisher



Purchasing Enters The Computer Age

The day of the completely automated purchasing cycle is here. A high speed computer controls inventory, reordering, follow-up, checking and paying invoices on 30,000 stock items. The system isn't only for industry's giants—electronic data processing is available to all.

By F. C. Walters, Purchasing Agent,
Esso Standard Oil Company
Baton Rouge, La.

MANY COMPANIES have applied Electronic Data Processing to certain portions of the purchasing function. We have tried to integrate the **complete procurement cycle** into a system that would approach the maximum in automation.

Starting with an inventory of material in our store house, we have attempted to automate each succeeding step through six phases including:

1. Control of inventory of stock items;
2. Reordering for stock replenishment which includes writing the purchase order automatically;
3. Follow-up of all open purchase orders, not only the machine orders for stock items, but also the orders for non-stock, non-repetitive, tailor-made items, which we still write manually;
4. Checking of invoices;
5. Paying the invoice by automatic writing of the remittance check;
6. Distributing charges to the proper account code.

Although these six steps have been combined into one continuous program, each step is separable from the others. It would be possible to automate any one or more of the six phases by itself though, of course, with less satisfactory results.

The schematic flow diagram on page 78 shows how the system works. Across the top of the diagram are the principal data

which must be fed to the computer currently to reflect daily changes in status. This comprises the daily input to the machine. It is the data which is to be recorded or "processed".

In the left-hand column, are listed the essential basic data which must be coded into memory in order to support the operation. This constitutes the master record for each item. It also is input to the machine, but it is relatively permanent, rather than current input. The word "permanent" is used here in the same sense as your wife uses it in referring to her "permanent" wave—it is permanent but subject to change and it should be viewed critically now and then with an eye to "redoing" it.

For example we can code into memory the name and address of our present supplier of machine bolts. If tomorrow another vendor offers machine bolts at a better price, or with a better delivery, the source of supply is changed, merely by introducing the name and address of the new supplier into memory. At the same time, and in the same operation, the new price and terms are inserted in place of the old, so that the data in the system's memory will be current at all times.

For these reasons, we refer to the basic data as "permanent but adjustable". All of the factors comprising the master record are changeable at will. As a matter of fact, once the system is in operation, these adjustments become the primary concern of the buyers in the purchasing department and of the inventory control personnel in the stores department.

Inventory Control

Inventory is controlled by feeding to the computer daily, for each stock item, all material receipts and all stock issues. By adding to the starting inventory all quantities received and subtracting all quantities withdrawn from stock, the computer maintains a current inventory of each item. Then by establishing in memory a reorder point for each item, the machine can be made to signal when the inventory of each item reaches reordering status. Reorder point is, of course, a function of lead quantity and minimum (or safety) stock.

P. A. Walters: "This is one purchasing agent's report on one method of applying one type of EDP. We use the IBM 705. Other computers—the Univac, the Datamatic 1000 and the Bizmac—have equivalent characteristics."

Key punching of data such as quantity received and quantities withdrawn, replaces the former hand posting of stock records. The computer performs additions and subtractions and by comparing the resulting inventory with a preestablished reorder point tells us "when to reorder".

On the other hand, we tell the machine "how much to order" by inserting an ordering quantity for each item in the basic data. In effect, the system envisions a "fixed ordering quantity, variable ordering frequency". Conceivably, there may be situations where a "fixed ordering frequency, variable ordering quantity" would be preferable. Either one can be readily programmed.

Theoretically it should even be possible to program for a "variable ordering quantity, variable frequency" but this would require the computer to solve several simultaneous equations which is possible but at the expense of additional running time. By using the fixed ordering quantity, purchasing achieves the advantage of always ordering in full package rather than broken package quantities; most practical quantity brackets; and in some cases in pallet loads rather than quantities not conforming with pallet size, by establishing the desirable quantity as the "fixed" quantity. Once this quantity is set up in the basic data, the computer will al-

Small Companies Can Use Computers

Suppose you're in the category of small business, and can't afford to buy or rent expensive equipment? What's in automated purchasing for you? Plenty.

(1) If your business isn't big, you may be able to get the same results with special equipment that computer manufacturers are sizing to meet the needs of their customers. Available computing equipment now comes in three sizes—large, medium, and small. Investigation may prove there's one for you.

(2) If your company operates in several geographical locations, but can't justify computer equipment in a single location, a central computer operation might be the answer. Data can be transmitted directly from punched cards or magnetic tape by wire from your office to a remote center with speed and accuracy.

(3) Not all equipment has to be electronic. Some companies have used IBM 602's and 402's, both of which are electric card to card machines. (See PURCHASING, August 1957)

(4) Computer centers are now being set up by equipment manufacturers in various parts of the country, usually in the larger metropolitan areas. Both IBM and the Remington Rand Division of Sperry Rand, builders of Univac, operate centers. They usually offer computer time on an hourly rate basis. You supply the source data. They process it and return the results to you in the form of finished reports for a reasonable fee.

(5) If you are far from a center, you may find a firm of accountants in your town who are planning to install computer equipment. You may find it feasible, for example, to support your own key punch operations then send the cards to a local accounting firm for processing. Or you may want to give them original data and let them process it into the form of finished reports.

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For these reasons, we refer to the basic data as "permanent but adjustable". All of the factors comprising the master record are changeable at will. As a matter of fact, once the system is in operation, these adjustments become the primary concern of the buyers in the purchasing department and of the inventory control personnel in the stores department.

Inventory Control

Inventory is controlled by feeding to the computer daily, for each stock item, all material receipts and all stock issues. By adding to the starting inventory all quantities received and subtracting all quantities withdrawn from stock, the computer maintains a current inventory of each item. Then by establishing in memory a reorder point for each item, the machine can be made to signal when the inventory of each item reaches reordering status. Reorder point is, of course, a function of lead quantity and minimum (or safety) stock.

P. A. Walters: "This is one purchasing agent's report on one method of applying one type of EDP. We use the IBM 705. Other computers—the Univac, the Datamatic 1000 and the Bizmac—have equivalent characteristics."

Key punching of data such as quantity received and quantities withdrawn, replaces the former hand posting of stock records. The computer performs additions and subtractions and by comparing the resulting inventory with a preestablished reorder point tells us "when to reorder".

On the other hand, we tell the machine "how much to order" by inserting an ordering quantity for each item in the basic data. In effect, the system envisions a "fixed ordering quantity, variable ordering frequency". Conceivably, there may be situations where a "fixed ordering frequency, variable ordering quantity" would be preferable. Either one can be readily programmed.

Theoretically it should even be possible to program for a "variable ordering quantity, variable frequency" but this would require the computer to solve several simultaneous equations which is possible but at the expense of additional running time. By using the fixed ordering quantity, purchasing achieves the advantage of always ordering in full package rather than broken package quantities; most practical quantity brackets; and in some cases in pallet loads rather than quantities not conforming with pallet size, by establishing the desirable quantity as the "fixed" quantity. Once this quantity is set up in the basic data, the computer will al-

Small Companies Can Use Computers

Suppose you're in the category of small business, and can't afford to buy or rent expensive equipment? What's in automated purchasing for you? Plenty.

(1) If your business isn't big, you may be able to get the same results with special equipment that computer manufacturers are sizing to meet the needs of their customers. Available computing equipment now comes in three sizes—large, medium, and small. Investigation may prove there's one for you.

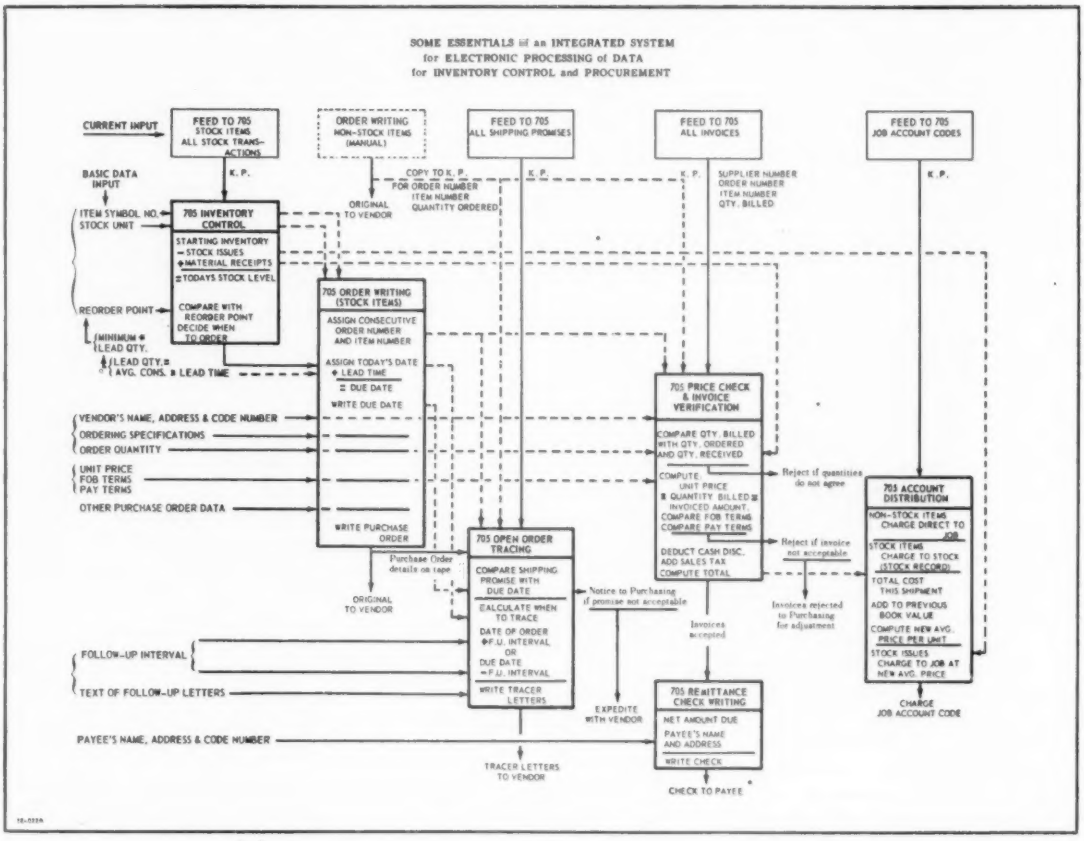
(2) If your company operates in several geographical locations, but can't justify computer equipment in a single location, a central computer operation might be the answer. Data can be transmitted directly from punched cards or magnetic tape by wire from your office to a remote center with speed and accuracy.

(3) Not all equipment has to be electronic. Some companies have used IBM 602's and 402's, both of which are electric card to card machines. (See PURCHASING, August 1957)

(4) Computer centers are now being set up by equipment manufacturers in various parts of the country, usually in the larger metropolitan areas. Both IBM and the Remington Rand Division of Sperry Rand, builders of Univac, operate centers. They usually offer computer time on an hourly rate basis. You supply the source data. They process it and return the results to you in the form of finished reports for a reasonable fee.

(5) If you are far from a center, you may find a firm of accountants in your town who are planning to install computer equipment. You may find it feasible, for example, to support your own key punch operations then send the cards to a local accounting firm for processing. Or you may want to give them original data and let them process it into the form of finished reports.

Flow Diagram of Computer System


SOME ESSENTIALS of an INTEGRATED SYSTEM
for ELECTRONIC PROCESSING of DATA
for INVENTORY CONTROL and PROCUREMENT
CURRENT INPUT
FEED TO 705 STOCK ITEMS ALL STOCK TRANS-ACTIONS
ORDER WRITING NON-STOCK ITEMS (MANUAL)
FEED TO 705 ALL SHIPPING PROMISES
FEED TO 705 ALL INVOICES
FEED TO 705 JOB ACCOUNT CODES
BASIC DATA INPUT
K. P.
COPY TO K. P. FOR ORDER NUMBER ITEM NUMBER QUANTITY ORDERED
SUPPLIER NUMBER ORDER NUMBER ITEM NUMBER QTY. BILLED
ITEM SYMBOL NO. STOCK UNIT
705 INVENTORY CONTROL
STARTING INVENTORY
– STOCK ISSUES
+ MATERIAL RECEIPTS
± TODAYS STOCK LEVEL
ORIGINAL TO VENDOR
705 ORDER WRITING (STOCK ITEMS)
REORDER POINT
COMPARE WITH REORDER POINT DECIDE WHEN TO ORDER
(MINIMUM + LEAD QTY.
(LEAD QTY. + AVG. CONS. × LEAD TIME
ASSIGN CONSECUTIVE ORDER NUMBER AND ITEM NUMBER
ASSIGN TODAY'S DATE + LEAD TIME ± DUE DATE
WRITE DUE DATE
705 PRICE CHECK & INVOICE VERIFICATION
VENDOR'S NAME, ADDRESS & CODE NUMBER
ORDERING SPECIFICATIONS
ORDER QUANTITY
COMPARE QTY. BILLED WITH QTY. ORDERED AND QTY. RECEIVED
UNIT PRICE
FOB TERMS
PAY TERMS
COMPUTE UNIT PRICE × QUANTITY BILLED ± INVOICED AMOUNT. COMPARE FOR TERMS COMPARE PAY TERMS
Reject if quantities do not agree
705 ACCOUNT DISTRIBUTION
NON-STOCK ITEMS CHARGE DIRECT TO JOB
STOCK ITEMS CHARGE TO STOCK (STOCK RECORD)
TOTAL COST THIS SHIPMENT
ADD TO PREVIOUS BOOK VALUE
COMPUTE NEW AVG. PRICE PER UNIT
STOCK ISSUES CHARGE TO JOB AT NEW AVG. PRICE
OTHER PURCHASE ORDER DATA
WRITE PURCHASE ORDER
705 OPEN ORDER TRACING
DEDUCT CASH DISC. ADD SALES TAX COMPUTE TOTAL
Reject if invoice not acceptable
Purchase Order details on tape
COMPARE SHIPPING PROMISE WITH DUE DATE
Notice to Purchasing if promise not acceptable
Invoices rejected to Purchasing for adjustment
ORIGINAL TO VENDOR
CALCULATE WHEN TO TRACE
DATE OF ORDER + F.U. INTERVAL OR DUE DATE – F.U. INTERVAL
Invoices accepted
FOLLOW-UP INTERVAL
TEXT OF FOLLOW-UP LETTERS
WRITE TRACER LETTERS
705 REMITTANCE CHECK WRITING
EXPEDITE WITH VENDOR
CHARGE JOB ACCOUNT CODE
NET AMOUNT DUE
PAYEE'S NAME AND ADDRESS
WRITE CHECK
PAYEE'S NAME, ADDRESS & CODE NUMBER
TRACER LETTERS TO VENDOR
CHECK TO PAYEE

ways (but subject to adjustment) order the same quantity or multiples thereof.

At Baton Rouge, this system of inventory control has been applied to some 30,000 stock items —more are being added and we expect the total will ultimately be closer to 50,000 items. After a year's operation, the system has been found to be perhaps 95 per cent automatic, that is, the machine has effectively controlled the inventory of 30,000 stock items and automatically reordered 95 times out of 100. The remaining five per cent represents emergency situations that will inevitably arise due to failure on the part of a supplier to deliver on time or due to unexpected demands on stock when consumption of an item temporarily exceeds the average rate of consumption. In these instances, the machine signals the emergency and the situation is handled manually either by expediting an open order or by placing an emergency order to supplement stock until the next delivery against an open order is made.

Writing the Purchase Order

The end result of the inventory control phase of the operation is the "reorder point". To print purchase orders automatically we have to preestablish in memory (that is, in the master record tape) all of the data to be incorporated in the order, and to feed purchase order blanks in continuous form to the printer.

How much information appears on the purchase order is a matter of choice. It may depend on how much running time is devoted to the operation — both computer time and printer time. Certainly the supplier's name and address, the order number, a complete ordering specification, order quantity, and a requested delivery date should be on it. In starting the run, the machine operator inserts today's date — to this, the computer automatically adds lead time to establish a delivery date. Lead time had already been introduced into the data for inventory control purposes.

Such additional data as price, f.o.b. terms and cash terms are optional. If automation is not to be carried beyond the order writing phase, and if there is no objection to releasing purchase orders without showing price and terms, these factors need not be included in the basic data. On the other hand, if price and terms must appear on the order, or if automation is to be carried through a subsequent invoice checking phase, it will be necessary to introduce price and terms at this point.

Buyers may have some concern about automatic writing of purchase orders for items for which they are not prepared to designate a specific source of supply, or which cannot always be tagged with a specific price. Provision is made for this situation by cod-

ing such items for "no supplier" or "supplier to be determined" in which case the 705 prints out an order omitting the vendor's name. This paper is then used as a requisition; price inquiries may be issued or the proper supplier is determined by other means. Thereafter the item can be returned to the system for automatic print out of an order to the supplier then designated or the purchase order may be written manually and introduced to the system for handling through the subsequent phases.

Special provision can also be made for apportioning successive orders among several suppliers where this is desirable.

Follow-Up of Open Orders

A complete system for routine tracing of open purchase orders is a part of the program. We have set up in memory a sequence of follow-up intervals and the text of several types of appropriate tracer letters. After an order is placed, the machine waits for an acknowledgment giving a shipping promise. If no promise is received within a reasonable time, the machine produces a letter, in duplicate, addressed to the supplier and ready to mail, calling attention to the defect. If the supplier fails to reply after another interval, the machine prints out a notice to purchasing to this effect. Purchasing then has the responsibility of expediting by 'phone or telegram or by any other method. The follow-up system is based on the principle that either the machine is tracing an item routinely or expediters are tracing manually, but not both at the same time.

It also presupposes that all shipping promises are fed to the machine as soon as received. The computer then compares the promised date with the due date already incorporated into memory in the order writing phase of the operation. If the two dates agree, within preestablished limits, the machine accepts the promise without comment. If the supplier proposes to deliver either too late or too early, the machine prints out a notice to the purchasing department which then takes action.

What the computer has done for ESSO

These are just a few results of Esso's automated proceurement program:

. . . an inventory control run is made four days each week, each covering about half of the 30,000 inventoried items. As a result of each run, about 90 purchase orders are printed in about 30 minutes.

. . . many stock items have automatically "gone on order" without any manual assistance. (E.g., for one family consisting of 19 related items, the machine has produced 31 purchase orders during a 14-month period, consisting of anywhere from one to five items per order. No manual orders of any kind were written.)

. . . both automatic and hand-written orders are fed to the machine's follow-up routine. This run is made every day—the machine reviewing some 5,000 open orders each day in about 45 minutes. Tracer letters are generated automatically at an average rate of 80 per day, which are printed in about 20 minutes.

. . . during the same follow-up run, about 200 invoices are being referred to the computer for verification, producing an average of 150 checks each day (which are printed out in about 15 minutes.)

. . . important information, heretofore difficult to compile, is being obtained that will help in value analysis, appraisal of vendor performance, reports to management, studies of stock obsolescence, etc. The program is by no means complete: it is easy to visualize hundreds of ways in which it can be improved and made to provide more useful information for purchasing and management.

If the proposed delivery date is acceptable, the machine takes no action. If everything is going well, we don't want to hear about it. This relieves purchasing of handling a lot of paper and posting a lot of information, the sole purpose of which would be to reassure us that we'll get delivery when we want it. We program the machine to tell us only when trouble is brewing so that we can devote our manpower effort to the trouble spots, without wasting effort on situations that will take care of themselves.

If either machine tracing or manual expediting results in a revised and extended shipping promise, the new date is key punched to the machine and the computer resumes follow-up toward this revised date.

In the case of long lead time items, where the delivery promise is three months or more, the computer is programmed to trace the supplier by form letter, 30 to 60 days ahead of the due date for reaffirmation of the promise. In the case of partial shipments, the computer takes into account the portion received and continues to trace for delivery of the balance. In each instance, the machine automatically writes one of a set of five letters appropriate to the situation at the proper time.

Checking and Verification

Having set up as basic data to the Order Writing phase of the operation unit price, f.o.b. terms, and pay terms for each item, the computer is in a position to check invoices provided all pertinent data on the invoice is key punched to the machine. This data include the order number, item number, unit price, quantity billed, terms of shipment, and terms of payment.

The computer compares the

quantity billed with the quantity ordered and with the quantity received (reported as part of the inventory control phase). It accepts the invoice if these quantities agree and rejects it if they do not agree.

The computer then reviews the f.o.b. terms and determines whether a charge for transporation is in order. If so, it will accept a transportation charge; if not, it will reject the charge.

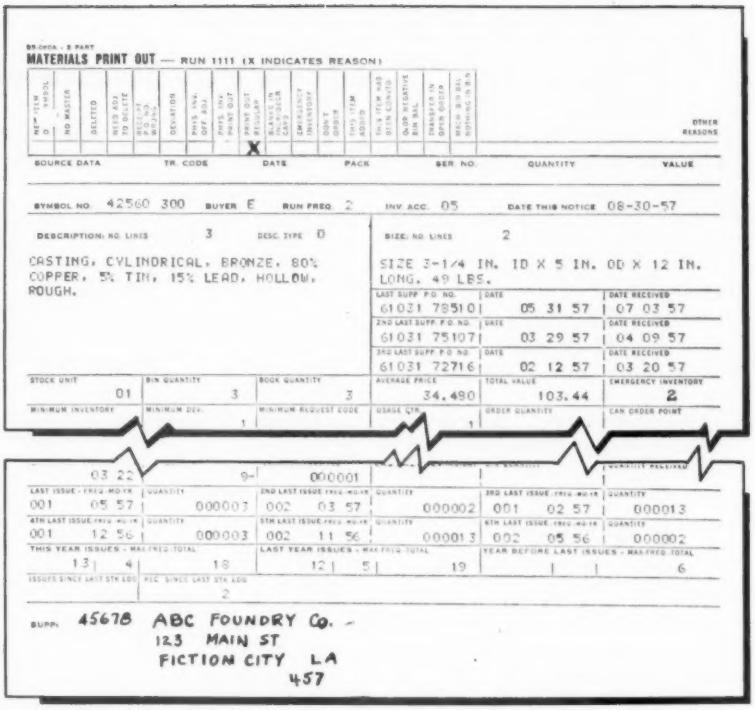
The machine computes the cash discount due (from the pay terms already coded into memory) and deducts this amount from the amount billed. The total net amount due is also calculated, and compared with the total amount billed. All invoices accepted by the machine pass on to the check writing phase of the operation.

If an invoice is rejected at any stage of the checking operation, the machine produces a print-out identifying the source of the error. This print-out is then hand matched with the invoice by the accounting department. If the error is arithmetical the correct amount due is verified manually by comptometer and the transaction may then be returned to the system for automatic writing of the check. In some cases checks in the correct amounts may be written manually.

If the invoice has been rejected for unit price or terms, the print-out from the machine is matched with a copy of the invoice retained in the purchasing department which handles the necessary adjustment manually by communication with the vendor.

Here the principle of "Management by Exception" is noticeable in that the system processes automatically, with little manual effort other than coding and key punching, those invoices which are correct in every detail, and reverts to manual handling only when an invoice does not agree with the data which has been placed in memory.

One important by-product of the invoice checking phase is a print-out from the 705 which lists both monthly, or on demand, for investigation and further handling, all items which have been received but not invoiced or



MATERIALS PRINT OUT — RUN 1111 (X INDICATES REASON)

REP. ITEM SYMBOL	NO MASTER	DELETED	NEED ADJ TO DELETE	DEVIATION	PHYS. INV. OUT 30D	PHYS. OUT ROUND OUT	BALANCE IN EXCESS OF MAX	EMERGENCY INVENTORY	DON'T ORDER	THIS ITEM ADDED	THIS ITEM HAS BEEN CORRECTED	QUOR NEGATIVE BIN BAL	TRANSFER IN OPEN ORDER	MAJOR SUB DEL. CORRECTION	OTHER REASONS
						X									

SOURCE DATA	TR. CODE	DATE	PACK	BER. NO.	QUANTITY	VALUE

SYMBOL NO. 42560 300 BUYER E RUN FREQ. 2 INV. ACC. 05 DATE THIS NOTICE 08-30-57

DESCRIPTION: NO. LINES 3 DESC. TYPE 0

CASTING, CYLINDRICAL, BRONZE, 80% COPPER, 5% TIN, 15% LEAD, HOLLOW, ROUGH.

SIZE: NO. LINES 2

SIZE 3-1/4 IN. ID X 5 IN. OD X 12 IN. LONG, 49 LBS.

	LAST SUPP. P.O. NO.	DATE	DATE RECEIVED
	61031 78510	05 31 57	07 03 57
2ND LAST SUPP. P.O. NO.	61031 75107	03 29 57	04 09 57
3RD LAST SUPP. P.O. NO.	61031 72716	02 12 57	03 20 57

STOCK UNIT	BIN QUANTITY	BOOK QUANTITY	AVERAGE PRICE	TOTAL VALUE	EMERGENCY INVENTORY
01	3	3	34.480	103.44	2

MINIMUM INVENTORY	MINIMUM DEV.	MINIMUM REQUEST CODE	USAGE QTR.	ORDER QUANTITY	CAN ORDER POINT
	1		1		

03 22		9-	000001					
LAST ISSUE - FREQ. MO'S	QUANTITY	2ND LAST ISSUE FREQ. MO'S	QUANTITY	3RD LAST ISSUE FREQ. MO'S	QUANTITY			
001 05 57	000003	002 03 57	000002	001 02 57	000013			
4TH LAST ISSUE FREQ. MO'S	QUANTITY	5TH LAST ISSUE FREQ. MO'S	QUANTITY	6TH LAST ISSUE FREQ. MO'S	QUANTITY			
001 12 56	000003	002 11 56	000013	002 05 56	000002			
THIS YEAR ISSUES - MAX FREQ. TOTAL		LAST YEAR ISSUES - MAX FREQ. TOTAL		YEAR BEFORE LAST ISSUES - MAX FREQ. TOTAL				
13 4	18	12 5	19		6			
ISSUES SINCE LAST STK LOC	REC. SINCE LAST STK LOC							
	2							

SUPP. 45678 ABC FOUNDRY CO.
123 MAIN ST
FICTION CITY LA
457

This materials print-out indicates the comprehensive range of data produced rapidly and accurately by the computer.

which have been invoiced but not received.

Since all problems involving invoice verification have been handled in the preceding phase of the operation, the check writing phase is perhaps the easiest to automate. Only one feature requires special mention. The check must be written in the name of the proper payee, which may not necessarily be the same as the vendor's name. In these cases, the vendor's name and code number as established in the basic data has associated with it the name, code number, and address of the appropriate payee. When the machine prepares the check, if these two do not agree, it writes in the payee's name rather than the vendor's name.

Distribution of Charges

All stock items as they are received are charged to an inventory account, at the price actually paid for the material. In this final phase of the procurement cycle, the computer calculates net unit cost, after adding transportation charges and taxes and deducting earned cash discounts. This unit cost is averaged with the cost of material already in stock to arrive at a current book value for the item. The book value associated with each item is retained on the tape as part of the record of that item. The computer is, of course, carrying our stock ledger and will print out a complete listing of all items in the ledger upon demand.

As material is withdrawn from stock for use in a specific job, the stock issues, as reported in the inventory control phase of the program, are identified as to job number and the computer charges each job with the quantity issued at the current book value.

Non-stock material acquired on manually written purchase orders is charged direct to the job for which it was ordered.

Here we begin to see how the data gathered and recorded within the procurement cycle are used as a basis for other related programs, such as cost accounting, tax accounting, financial accounting. It is in this integration of one program with another that we find the true value of the system.

Automated Order Writing:

How to Save a Dollar an Order

210,000 fewer pieces of paper per year, direct cost savings of $33,000, faster handling of incoming material. These are a few of the improvements made by G. E.'s Jet Engine Department by purchasing with punched tape.

By Dean S. Ammer

A RECORD for mechanization of purchase order writing may have been set last year. The pacesetter was General Electric's Jet Engine Department (J.E.D.) in Evendale, Ohio. Late in April, Materials Manager G. E. Hotaling went to a General Electric materials managers meeting in Atlantic City and saw a demonstration of automatic order writing. He thought the equipment shown might be at least part of the answer to one of his biggest problems: paperwork. J.E.D. issues about 150 purchase orders a day, about 170 receivals and has about 4000 open orders.

When he got back from the meeting, Hotaling gave his procedures expert, J. T. Walsh, the job of setting up an automatic order system at J.E.D. Walsh immediately went to work. He made up preliminary forms and procedures and visited Standard Register's forms workshop to test his ideas and get accurate operating data. Equipment was ordered June 1. In August, the department had the automated setup in operation. The whole job was done in just under four months. **The department is now enjoying these benefits:**

1. **Direct cost saving of $33,159 per year**
2. **Elimination of a minimum of 210,000 pieces of paper per year** that had to be distributed, read, and filed.
3. **Improved operating efficiency.** Average receiving time has been cut from to two-three days to four or five hours. And invoices now rarely hit the buyer while the material is still waiting to be received.
4. **Elimination of expediting contracts** on material received.
5. **Greater accuracy** since, once the correct information is entered on the punched tape, typographical errors become almost impossible.
6. **More uniform workloads** for people and equipment used in preparing purchasing documents.
7. **Statistical data** for quality control, vendor rating, etc. can be directly interpreted by machine.

Evendale's automatic order writing system makes use of five channel punched tape to eliminate re-typing of basic data on quotation requests, purchase orders, and receiving reports.

Naturally, the first step in making a purchase is getting quotations. This is the only step that resembles conventional purchasing procedures. The buyer fills out in pencil a request for quotation. From this a conventional-looking quotation request form is typed up. At this point, automation begins. A five-channel paper tape is generated when the form is typed. Recorded on this tape is all the information that appears on the quotation request —including the names and addresses of all of the vendors invited to quote.

Issuing the Order

The buying process itself naturally isn't mechanized. No one has yet developed a machine that is a substitute for the buyer's judgment. The buyer must analyze quotations and select the source. He then indicates the successful bidder along with the agreed terms and conditions on the quotation re-cap sheet that was made up with the quotation request.

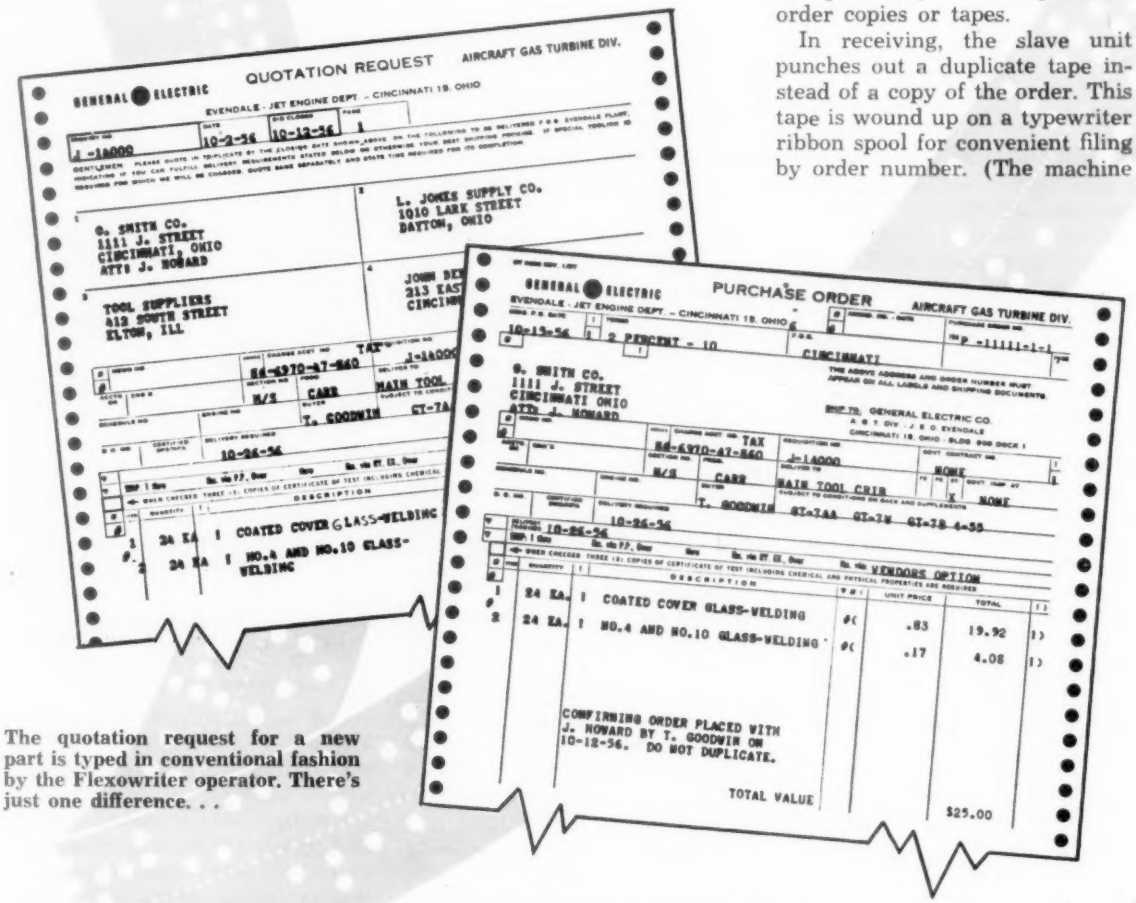
In purchasing, two Flexowriter operators prepare all purchase orders and quotation requests in addition to other duties. The machine in the background automatically types out receiving reports from information transmitted electrically from the receiving area. . .

The machine operator takes the tape that was generated with the quotation request and proceeds to type the order. The typing is entirely automatic except for information that was not known at the time the quotation request was made up—i.e. price, date of order, special terms and conditions, etc. A second tape is automatically generated when the purchase order is prepared. On it is all the information that appeared on the order.

Receiving Takes Over

An operator feeds this second tape into a teletype distribution unit. From it, copies of the order are automatically typed in by slave units in accounting and the appropriate project area. This, of course, eliminates a lot of interdepartmental mail and reduces the possibility of lost purchase order copies or tapes.

In receiving, the slave unit punches out a duplicate tape instead of a copy of the order. This tape is wound up on a typewriter ribbon spool for convenient filing by order number. (The machine



The quotation request for a new part is typed in conventional fashion by the Flexowriter operator. There's just one difference. . .

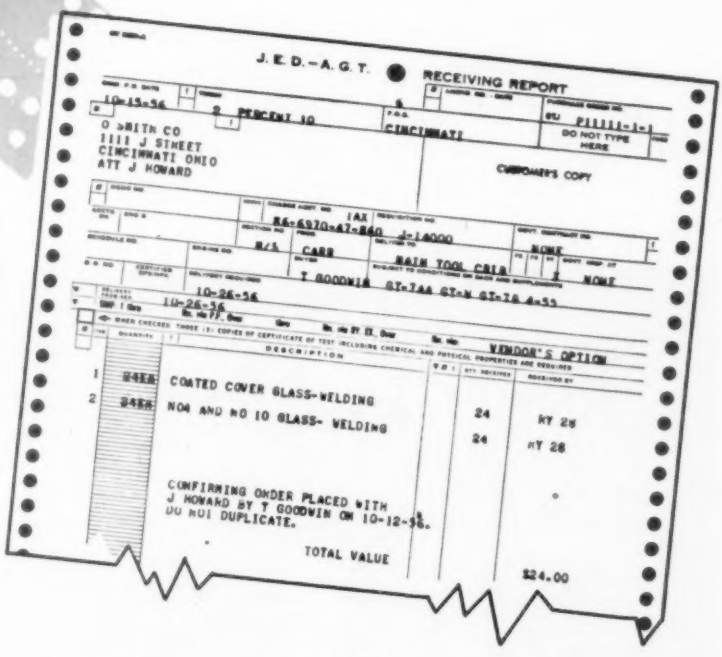
. . . a six-channel punched tape is generated by the Flexowriter. It's saved until the buyer gets back quotations and selects the source. Then it's used. . .

. . . to type the purchase order. All information common to both the quotation request and purchase is typed automatically from the tape. Variable information is typed manually by the operator.

Tape generated in typing the order is fed into teletype transmitter which causes copies of the order to be typed out automatically in accounting and the project areas and a second tape to be generated on a slave unit in receiving.

Each tape transmitted to receiving is wound up on a typewriter ribbon spool. It's then filed (by the last three digits of purchase order number) until a shipment is made against the order.

The tape is then used to create a receiving report. Variable information from packing slips, etc. is typed in by hand; the rest of the job is done automatically.



The receiving report is transmitted to slave units in purchasing and accounting and is typed out automatically. This minimizes transmission time of receiving information which makes for better inventory control and fewer shortages.

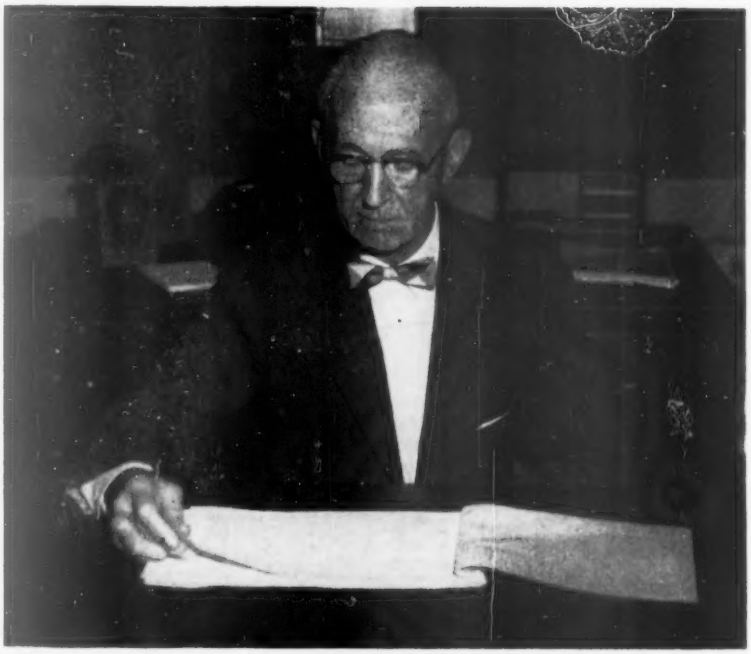
that punches the tape also prints key data such as the purchase order number, part number, etc., for easy identification of tapes.) The tape is filed until there's a receival against the order. Then it's pulled and used to run off the receiving report. Again, practically the entire job is done automatically. All that's typed in manually is new data such as packing slip number and other specific receiving information.

The usefulness of the punched tape doesn't end with the last receival against the order. The tape can be used to run off routing tickets, test requests, rework instructions, shipping paper, and assembly instructions. This doesn't exhaust the possible uses of the data on the tape by any means. For J.E.D. has equipment which will transfer the information on the tape to punched cards. The cards, in turn, can be used for reports on material status, limiting items, vendor performance, etc. They can also provide basic data for accounting and inventory records. Thus, J.E.D.'s present system will no doubt lead to further improvements.

Man With a Purchasing Philosophy

For Ike Walton purchasing has been more than a job—it's been a way of life. His leadership has made purchasing a vital force in his company's operations.

By Ned Kellogg



Retiring as head of the Heppenstall Co.'s purchasing operations, Ike Walton leaves behind him a vigorous, imaginative purchasing department.

SIXTY-FIVE-year-old Ike Walton has approved his last purchase order. The former vice-president of purchases and traffic for the Heppenstall Co., Pittsburgh, is now in retirement. As he walked erectly out of his office the other day for the last time, he left behind him neither a bulging manual of purchasing policies, nor a new kind of problem-solving purchase order. What he did leave was a purchasing philosophy—a philosophy which has permeated the whole Heppenstall purchasing department.

For Walton, purchasing has not been a job—it's been a way of life. An integral part of this way of life has been the willingness to take a chance, to act imaginatively and not to be so afraid of making a mistake that every problem is met with the stereotyped book solution. He's a strong believer in playing things by ear.

"Too many rabbits . . ."

In appearance, Walton is reminiscent of a Rudyard Kipling colonel. He's gentlemanly, force-

"Purchasing is a snap. . . ."

Asked what he felt made a successful purchasing executive, Ike Walton, former vice-president of purchases and traffic, Heppenstall Co., sized the problem up this way:

"The successful purchasing executive begins by learning basic procedure and company policy. From purchase negotiation he gets to know and evaluate suppliers, to meet and judge the worth of their representatives. He investigates the four pillars of value buying: right quantity, right quality, right time, right price. To determine these factors, he must consult with both suppliers and his own organization, and learn to work harmoniously with both.

"Then of course he gets into inventory problems, standardization, methods, materials, technology. Judging the right time and the right price involves timing factors, seasonal advantage, along with consideration of quantity and value.

"Somewhere along the way the successful purchasing executive has to study economics, market conditions, geopolitics, labor relations, transportation costs and technology.

"At this stage, if he has used his accumulated knowledge intelligently, he finds his opinion sought and his judgment accepted. His experience is needed in management circles and he has a good chance of attaining official status. Purchasing is a snap."

ful, aggressive. He admits he likes a good fight.

"There are too many rabbits in the world", says Walton. "People really like to have someone else assume authority, and the man who's stubborn enough will get it. Maybe he'll have to fight someone at the start, but once he's won the first skirmish people will come to him seeking leadership."

Proof of the success Walton has had in gaining recognition for purchasing is indicated by the fact that as a vice-president he reported directly to the president and chairman of the board.

He hasn't made his drive to gain recognition for purchasing a one-man show, however. He believes that everyone in his department should be able to fight for himself, express his own ideas, make his own suggestions to management. Naturally, whenever there was trouble, Walton would back up his people, but he felt very strongly that everyone in his department should be able to speak for himself. This is undoubtedly one of the reasons Heppenstall has such an effective purchasing department and why its so highly respected in the company.

Act as Advisory Group

Walton, however, does not feel that purchasing should try to get control of as many phases of company operations as possible. For example, he much prefers to have purchasing act as an advisory group when it comes to operations that he feels are not directly purchasing's responsibility.

It's Walton's view that purchasing can be most effective if it's in on the decision-making stage, can make its suggestions and criticisms, but doesn't get involved in the details of carrying out programs which he feels are outside of purchasing's scope. As he puts it, "I'd much rather receive a report from another department than have to write it."

Walton's basic buying philosophy is keyed to the principle of attaining the cheapest production for the company. This does not mean buying the cheapest material. He feels that any buyer who purchases on price alone isn't doing his job—that the question buyers should always keep in mind is which alternative will mean the most money for the company.

Purchasing's Cardinal Sin

The cardinal sin in purchasing so far as Walton is concerned is to have a production shutdown because of lack of materials. Being both steel buyer (50,000 tons per year) and a steel producer, Heppenstall from time to time is faced with the problem of steel shortages and scarcities of the ferrous and nonferrous materials used in steel production. Despite the problems this user-producer setup poses, it's Walton's proudest boast that in the 28 years he headed up purchasing at Heppenstall, there never was a work stoppage because purchasing couldn't obtain the materials that were needed.

One of the reasons for Walton's success in keeping the plant in

operation despite occasionally acute supply shortages is his willingness to take a chance. Recently for example he ran into pinch on molybdenum due to a strike at one of the major supplier's plants. He had a chance to pick up some foreign moly at 80 per cent above the domestic market price. The price was high and there was also the question of whether the quality would be up to standard. Without hesitating however, Walton went ahead and made the buy.

As he points out, if the strike had ended right after the purchase, it would have been a bad buy. However, if the strike continued and the furnace had to be shut down because there was no molybdenum, it would have been a good buy even at three times the regular price.

Not a Panic Operation

Walton's view is that all you can do in purchasing is to evaluate the facts that are available on the day you have to make a decision. Then go ahead and do what you think is best under the circumstances. If later events make you look bad, forget it. If you start worrying about the mistakes you might make, purchasing will tie you in knots. He doesn't believe in making purchasing a panic operation.

The instance of the molybdenum shortage also serves to show how Walton used purchasing's advisory status to the company's advantage. In going over the company's monthly steel production schedules recently, he noticed that some of the heats required a great deal of the then scarce molybdenum. Walton got together with the production and sales department and pointed out that by switching to a different steel classification they would use less moly in 12 heats than would be used in two of the scheduled heats. Walton won his point and the production schedule was revised.

Study Labor Relations

As another safeguard against material shortages, the Heppenstall purchasing department makes a yearly review of the labor relations of its major suppliers. A list of the labor contract termination dates for each supplier is prepared once a year, and a few months before a new contract is scheduled for negotiation, the labor situation of the supplier involved is studied. The supplier is asked for a statment on what shape his labor relations are in and what the chances are that there might be a strike. Walton has found that in most cases the suppliers try to make an honest evaluation.

In addition, further information can be obtained from the supplier's competitors. From newspapers and trade magazines, purchasing can find out whether a union is likely to make outrageous demands that might lead to trouble. If it seems possible that there may be a strike, Heppenstall hedges the problem either by increasing inventories or by lining up alternate sources of supply.

Get Good People—Pay Them

When it comes to running his department, Walton favors a loose rein. He believes in getting good people and paying them well. "I never had any desire to head up the largest purchasing department with the smallest payroll", he says. By giving the people in his department an opportunity to operate on their own, he has developed a crack purchasing staff.

It's standard operating procedure at Heppenstall for buyers to visit vendors' plants. Walton feels this not only helps the buyers find out more about the supplier but also gives them a chance to know the top brass in the supplier organizations. He feels that it's a tremendous help whenever there's trouble if a buyer can pick up the phone and call a vice-president rather than settle for someone farther down the line in management.

Walton approves of buyers accepting "reasonable entertainment" from vendors. By having lunch or dinner with suppliers, going to a show or playing golf, Walton believes a buyer will be able to establish much closer contact with the salesman than if all the meetings are on a strictly business basis. "If a buyer can call a vendor 'Joe', he's likely to get much better results than if they have a more formal 'mister' relationship."

Buyers Pick Up the Tab

However, Walton believes the only reason a buyer should accept entertainment is to establish friendly relationships. "If a vendor takes a buyer to lunch to try to make a deal, the buyer shouldn't feel embarrassed about turning him down. Tell the salesman he made a good try but that it's still no sale." To make certain that no buyer gets too indebted to a supplier, each buyer at Heppenstall has an expense account and is expected to pick up the tab on occasion.

Walton feels that it's not the buyer's job to win popularity contests, however. What he wants most is for his buyers to win respect. "If I ever heard that one of my buyers was regarded as the salesmen's best friend, I'd have fired him," says Walton.

In dealing with vendors, Walton believes that a really top-notch purchasing executive will actually train vendors' salesmen who may be doing a poor job. As he puts it, "If they're too inexperienced to know what you want, then it's up to you to teach them how to make their presentations." Over the years, Walton did this with a number of salesmen, and, as a result, there are a lot of salesmen who feel quite close to him and would go all out to help him whenever he was in need of their assistance.

Purchasing—A Vital Force

It's difficult to evaluate all of Ike Walton's achievements at Heppenstall. So much of what he's accomplished stems from the impact of his personality rather than from any procedures and policies he's laid down. But the net effect has been that because he has felt that purchasing is not a job, but a way of life, he has left an indelible imprint on Heppenstall purchasing. Because of Walton's leadership, purchasing will continue to be a vital force in the company's operations.

Purchasing's Part In the Profit Picture

By Stuart F. Heinritz

MOST COMPANIES today recognize the importance of sound purchasing as a part of good management. But not all. For instance, the sales manager of a well known specialty machine tool company recently remarked, in the course of a business conversation:

"Purchasing doesn't mean very much in our business. After all, we're not selling an assembly of so much cast iron and steel. We're selling engineering know-how and expert design. And our customers aren't buying just a machine. They're buying the production quality and capacity that we build into it. That's what the machine is worth to them—what it will do for them. We don't have to sell on price. Suppose we did beat our brains out and saved 10 or 15 per cent on materials, or even more. So what? That's still peanuts compared with our development and shop costs. Suppose we could cut a few dollars out of cost without sacrificing quality. It wouldn't change the value of our product or the scope of our market. And we're doing all right."

This attitude is not cited as being representative of an industry, for it probably is not. However, it does reflect the philosophy of a particular company in respect to purchasing. And in this, it is far from being an isolated case.

Industry Can't Afford to be Casual About Purchasing

Many companies believe they can afford to be casual about their purchasing because they are "different". Essentially, they are not. It is only a matter of degree. Many are casual because they are "doing all right" as is. They could do better.

In our private enterprise system, management has the right to pay as little or as much attention to its purchasing activities as it pleases. But in the light of what industry and management as a whole have learned about purchasing, neglect of this function represents not only missed opportunities. It is thoroughly uneconomic. It is a default of some very basic economic responsibilities that are inherent in purchasing.

The goal of management is profit. It follows that every phase of company activity is, or should be, so conducted as to make its maximum contribution to the profit goal. The contribution that sound purchasing can make to profits is a very substantial one, since every dollar saved in material costs is just as big and just as significant on the balance sheet as the dollar added to value in shop operations and the dollar of sales income. The means by which purchase savings are achieved (embracing the whole broad fields of material management and value buying as well as direct market research and skillful negotiation) are outside the scope of the present discussion.

There's No Mystery About Profitable Purchasing

The important point is that management experience with modern purchasing science shows our sales manager's estimate of a 10 or 15 per cent potential to be well on the conservative side. There is no magic or mystery to profitable purchasing. But the plain fact of the matter is that these potential savings will not be realized without an alert and competent purchasing program, setting high standards of purchasing performance and fixing definite, specialized responsibility for watching this element of cost. Even in a company that can afford to forego such a saving, whether for pricing or profit advantage, failure to seek it in some reasonable measure represents so much waste. And avoidable waste of any sort is economically unsound, or worse.

In pursuing the profit goal, management naturally and properly gives first attention to the dominant factors in its operation. In this case, it is the engineering activities that loom as of

first importance in the company's operation, in the value of the product, and in over-all cost. Purchasing activities and costs are a secondary consideration. In this respect our machinery builder is not typical of industry as a whole. There are many reliable statistics on the significance of purchasing in manufacturing industry.

The most recent objective survey of the subject (First National City Bank of New York, Monthly Letter, August, 1957) shows that the item of purchasing expenditure in the 100 largest manufacturing companies in the nation amounts to 55.8 per cent of total operating costs and accounts for the disposition of 51.8 per cent of total revenue. Whichever way you look at it, in manufacturing industry as a whole purchasing represents the biggest single cost factor—bigger than all the others combined. It would be cavalier indeed to claim that "purchasing doesn't mean very much" in the light of this evidence.

Of course the individual company must be managed according to its own circumstances, and not according to general averages. In arriving at the average purchasing factor of 55.8 per cent, there are some companies in which the factor is considerably higher, and some in which it may be as low as 30 per cent or so. Our machinery builder comes within the latter group. But this does not mean that he should overlook the advantages of better purchasing, to whatever degree they may be available, nor that he can afford to do so. Let's see what such neglect means, economically.

This company's most important asset is its engineering skill and performance. Its competence in this area is such that engineering can, and does, carry the entire load, including the load of wasteful purchasing. No wonder management puts engineering on a pedestal. But by the same token, the company is not receiving full value, profit-wise, from its chief asset. It is not conserving that asset. Is it good management, or good economics, when *neither* purchasing nor engineering is making a maximum contribution to the profit goal?

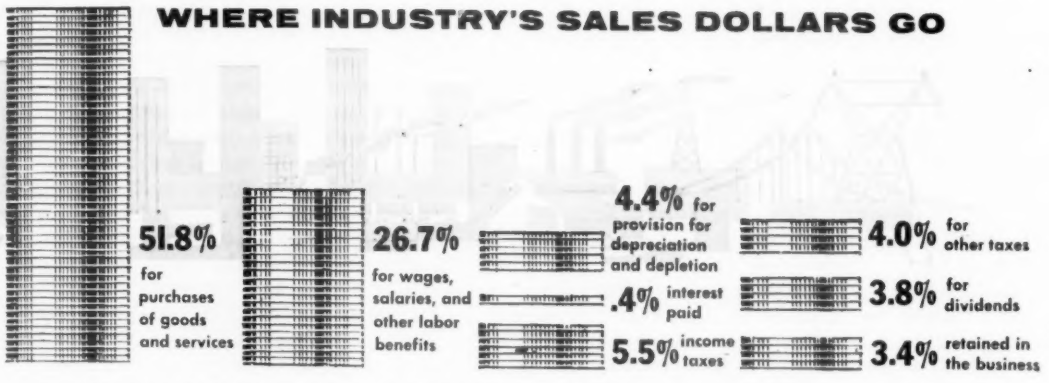
How Purchasing Can Affect Competition

Superior engineering has lifted this company's product above price competition, at least up to now. There is confidence that this same technical skill will be able to maintain that pre-eminent position, so far as comparable equipment is concerned. But this is not to say that the product has been lifted out of competition. For competition is not limited to the price factor. There is an even more fundamental type of competition constantly operating—between new and dissimilar materials for existing applications, between new and dissimilar methods for accomplishing present purposes. It is the history of technological progress that new methods and new types of equipment are developed that eventually replace and render obsolete even the finest and most efficient facilities heretofore known. This is the competition that every technical man and every engineering organization faces.

When an alternative method or machine is developed to the point where it is equally acceptable for the customer's purpose where present superiorities in quality and productivity have been levelled out, or almost so, and the customer has a choice between two pieces of equipment that will do the job he needs, that choice will be made on economic grounds. Cost factors that now seem relatively unimportant may be the decisive factor in that evaluation.

If and when such a situation confronts our machine builder—five years or twenty years in the future—he will have to revise his ideas of competition. He may have the best engineers in the world, in his specialized field, but there will be very little they can do about it, for this competition between technologies, not between technicians. The customer is no longer satisfied to ask: What will it do for me? He adds: At what cost? Purchasing may help to give the satisfying answer to this embarrassing question.

Since this eventuality is admittedly hypothetical and in the future, our argument may seem premature. Isn't there plenty of time to turn attention to cost savings through better purchasing


WHERE INDUSTRY'S SALES DOLLARS GO
51.8% for purchases of goods and services
26.7% for wages, salaries, and other labor benefits
4.4% for provision for depreciation and depletion
.4% interest paid
5.5% income taxes
4.0% for other taxes
3.8% for dividends
3.4% retained in the business

Based on figures of the First National City Bank of New York showing disposition of receipts by the 100 largest U. S. manufacturing companies in 1956.

when the problem actually arises? Perhaps. It would seem better managerial strategy, however, to waste no time in establishing an impregnable competitive position, economically as well as technically—especially since it might be done at no cost to the company whatever, if the sales manager's estimate of possible savings is valid. He is properly insistent that the search for purchase economies should not be permitted to impair quality. There need be no conflict here, but he precludes the possibility by ignoring both purchasing and economy. He should be equally concerned lest the preoccupation with engineering impair present profits and future competitive position.

Good Purchasing Puts More Value in a Product

This is not a discussion of pricing policy. It is always difficult to assess the value of intangibles in monetary terms, and this equipment manufacturer is selling "engineering know-how and expert design". We do not suggest for a moment that these valuable ingredients are overpriced in his product. A consistently successful record of sales indicates that the customers are willing to pay. The theory of value underlying this pricing system, and its acceptance, is expressed as "the machine is worth . . . . what it will do for them." Since we are concerned here with economic factors, and with purchasing, it is appropriate to point out that the value to the buyer would be even greater if his investment in the machine were a little less. We refer to the "few dollars that could be cut out of cost" without sacrificing quality and without selling cut-rate engineering.

The few dollars may seem trifling to the seller, but they are built into the customer's cost of operation just as truly as production quality and capacity are built into the machine. They are reflected in the overhead charges on every unit of product turned out on that machine throughout the years of its active life, over and over again. To that exent, the buyer is not receiving as much value in his purchase and investment as would otherwise be the case. Such trifling costs are not overlooked by the practitioneers of value analysis in buying. They have learned that the elimination of any avoidable cost, however small, adds up to impressive totals in repetitive use. It would be a helpful gesture, in the interests of the customer's economy, if these unnecessary dollars were in fact cut out of the cost. It would make the producer a more valuable—and more highly valued—supplier.

Some people go even farther than this suggestion, and include such a policy among the actual economic responsibilities of purchasing. In the Air Force's urgent wartime procurement program, contracts had to be placed primarily on the technical and physical competence of suppliers. Cost was a subordinate consideration. The equipment had to be delivered on schedule, and it had to be right. National security permitted no compromise with this priority of interest. But directly

on the heels of every major contract, a team of civilian purchasing specialists visited the contractor's plant. Their mission: to see that the *supplier's* purchasing methods were such as to afford maximum value, and to help put the supplier's purchasing house in order, if necessary. Both parties were beneficiaries of this project.

The ways of public business are not always the ways of private enterprise, but purchasing men think pretty much alike, in whatever field they may be working. They expect the supplier to have an active and sympathetic regard for the customer's costs. There is a responsibility to the customer. And, of course, there are innumerable instances where this responsibility is accepted—where suppliers effectively cooperate in, or even initiate cost reductions for customers.

Purchasing Is a Safeguard Against Inflation

There is yet another very basic economic responsibility of purchasing. Circumstances may be such that a company may think it can be indifferent to potential purchase savings, for its own account or that of its customers. But casual buying, without an insistent regard for maximum value, is an open invitation to inflationary costs and pricing. That is the common enemy.

Our machinery builder has set up a criterion of value for his product—what it will do for the buyer. That same criterion applies with equal force to the dollar. It's worth what it will do, what it will buy, not only in terms of a machine tool, but in food, clothing, shelter, and all the extras that go to make up our standard of living.

It is important to every individual, every company, and to the nation as a whole, to maintain the integrity and value of that dollar.

The best and most direct safeguard against inflation is the constant search for value at every stage of the production and distribution process. Let management do what it will, according to its best judgment, with those "few dollars" that might be cut out of cost through better purchasing.

Let them be added to profits, or plowed back into the business, or passed along to the customer, or paid to the government in taxes. But don't let them go by default, lest they come back to haunt you in the specter of inflation. No one can say, "Purchasing doesn't mean very much." It is one of the basic measures of our economic stability and well being.

Help Wanted—Male
PURCHASING AGENT
Unique Growth Opportunity
PURCHASING ASST
Young man, 23 to 27, preferably experienced in equipment for food preparation and serving. Some college, with technical background and general office work.
Salary open, based on training and experience.
State age, education, experience and salary desired.
Purchasing Agent-Trainee
PURCHASING ASSISTANT
If you have 3 to 5 years solid experience purchasing precision machined parts (electro-mechanical components and equipment also desirable), this large Metropolitan New York manufacturer offers you a challenging position as 2nd in command of our purchasing department.
Proven administrative experience essential. Engineering degree preferred. Salary commensurate with ability.
Write fully, including experience, education, age and previous earnings

The P.A.'s $alary: GOING UP!

• *Staff Report*

SALARIES OF purchasing people, from assistant buyer to director of purchases, are on the rise—and will probably continue going up in the years to come.

That's the result of a study made by PURCHASING Magazine among purchasing agents, employment agencies, salary administrators and top management officials. Just about everyone agreed that the historically low salary scales in the purchasing profession have risen considerably since the end of World War II and are, in most jobs on the supervisory level, equivalent to similar positions in design, production, engineering—and even sales.

"The status of purchasing is such now that some men are willing to take salary cuts to get purchasing jobs," says Miss Margaret Busher, owner of the Busher Employment Agency in New York City. "We had an executive in here recently who was willing to accept a purchasing job at $2000 less than he had been making as a market researcher."

Of course, salaries in the purchasing field today cover an extremely wide spectrum. At one end are the $50 a week jobs offered apprentice purchasing clerks. At the other, most likely, is the salary earned by Paul S. Killian, vice-president for purchasing of Bethlehem Steel Corporation. His gross pay in 1956: $374,507—including $329,507 of "special incentive compensation."

"Classified" Information

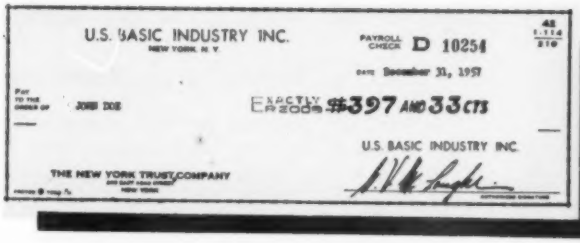
Many companies refused outright to give any information about their salary levels. Executives were extremely reluctant to reveal anything more than the barest of figures relating to their "confidential" or "classified" salary scales, and did so only with the absolute assurance that their names and companies would remain anonymous.

However PURCHASING Magazine has been able to determine these five broad ranges of "going rates" to purchasing personnel:

Assistant Buyer	**$5500—$7000**
Buyer	**$7000—$8500**
Assistant Purchasing Agent	**$8500—$12,000**
Purchasing Agent	**$12,000—$20,000**
Director of Purchases, VP for Purchasing	**$20,000—$50,000**

The first point to keep in mind when studying these figures is that young purchasing men may be employed in the purchasing department or other departments of a company two or three years "learning the ropes" before advancing to the assistant buyer category. According to Dean Rosensteel—director of the American Management Association's Executive Compensation Service, who served 3800 companies last January—the average college graduate starting in purchasing earns about $4800.

Another factor to consider is that the highest salaries are at the top of the job pyramid—where there aren't too many to go around—with the pay declining as the base becomes broader. The AMA notes that the purchasing positions at $50,000—and up—are practically limited to companies with sales of $1 billion or more.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Management consultants are constantly devising incentive programs to keep executives happy at their jobs. But no one has yet been able to come up with a program as effective as the time-honored method of higher salaries. Here's a special report on the purchasing agent's salary position and his outlook for the future.

But the fact remains that the status of virtually all the 70,000 men (and women) who actually "buy" for industrial organizations —producing both durable and non-durable goods—has advanced considerably since the end of World War II. Their remuneration too has generally risen—commensurate with their increased prestige and importance in the organization structure.

The AMA figures that companies with sales of $100 million, employing 8000 men and women and having between $50 million and $60 million in invested capital, pays its top purchasing executives around $25,000. The head P.A. at corporations recording sales of $7,500,000, with 5000 to 6000 on the payroll and $4 million invested in the business, earns about $10,000 a year.

Moreover, higher salaries are not just limited to purchasing personnel on the management level. *Almost every position on the purchasing organization chart has higher minimums today than it had five years ago.*

In a random sampling of the purchasing positions advertised in the *New York Sunday Times* over a two month period recently, there were a number of jobs available at $7500, a couple at $10,000, a few more at $15,000 and a management-level post at $30,000. During the same two months in 1952, most positions fell in the $6500 range, with only two advertised at $7500 and one director of purchases post at $15,000.

Another instance of salary increases for purchasing personnel was provided by the director of purchases for a major eastern industrial corporation. He figures that the men in his department earned 15 per cent to 18 per cent more in 1957 than in 1952.

"Whenever labor gets theirs, everybody gets a boost," he says. His organization pays buyers without supervisory responsibilities anywhere from $6000 to $18,000 a year.

Salary Variables

Any attempt to categorize salaries in the purchasing area finds many exceptions because of the variables involved. The size of the company, the type of industry, the dollar volume purchased, the size of his department, the standard of living in his area and his experience are all vital items to be considered.

For example, since certain industries offer higher salary scales than others and purchasing department salaries tend to go along with the industry, it isn't unusual to find men in similar positions at different companies with a wide disparity in their paychecks. **Accordingly, many P.A.'s employed by steel, auto, rubber and oil corporations receive higher sums than their colleagues on the same level who work for utilities, paper and construction companies.**

Two other important concepts in determining salaries are the degree of technical knowledge and educational background required for the job. *Electronic and chemical buyers often draw more pay than buyers of office supplies and printing materials because of the skills they must possess.*

As a matter of fact, the coffee buyer's salary at a major eastern food company exceeds that of the director of purchases. This, however, is an unusual instance created by the high degree of specialization and training required in coffee buying and is by no means typical of industry in general.

A midwestern company prepared a salary survey last fall based on information received from other companies in the same city. It found that a buyer with five years experience and an engineering degree was earning be-

Purchasing Agent, Departmental Manager

Supervisors covered in this classification are purchasing department managers. Job classifications supervised normally require a high degree of technical skill and considerable training in practices and procedures pertinent to the functions performed by a purchasing department. Job classifications supervised would normally include: assistant purchasing agent, senior buyer, buyer, purchasing expediter, department secretary, etc.

Number of companies	68	Weighted average	$789
Number of managers	99	Median	$800

Purchasing Agent

(Senior Buyer)

Has full scope of authority to purchase, at the most favorable prices consistent with quality, quantity, delivery, and other factors, raw materials, equipment, machinery, and supplies necessary for the operation of the firm. Goods purchased are processed, consumed, or used in the firm and are not purchased for resale at a profit. Selects vendor sources and has considerable latitude in determining acceptable price. Does not include persons working under detailed supervision.

Number of companies	126	Weighted average	$625
Number of employees	293	Median	$615

Purchasing Supervisor, Departmental Assistant

Employees covered in this classification exercise supervisory authority over a range of job classifications within a specific section of a purchasing department. In absence of the departmental manager, the employees covered may assume departmental supervisory authority. Employees supervised are normally required to perform tasks pertinent to the functions of a purchasing department. Job classifications supervised would include: departmental clerk, secretary, stenographer, typist, etc.

Number of companies	49	Weighted average	$604
Number of assistants	96	Median	$612.50

Purchasing Assistant

(Buyer)

Under detailed supervision performs purchasing duties of limited scope and with restricted authority. Responsible for the more routine purchasing activities; may take bids and make purchase of a limited number of commodities (not for resale at a profit) in designated amounts and up to a specified value. Does not include clerical assistants to senior buyer.

Number of companies	142	Weighted average	$512
Number of employees	400	Median	$520

◄

As part of the community wage rate survey conducted last August and September by the Merchants and Manufacturers Association of Los Angeles, the average and median monthly salaries for purchasing agents and buyers in the area were determined. The men were grouped into four classifications, based on their positions and responsibilities.

tween $12,000 and $15,000 annually, while another buyer of the same commodities with ten years experience and a non-engineering degree was earning between $9,720 and $10,800 a year. There was a difference of about $1400 in the annual salaries of two electrical and coal buyers at different companies even though the man earning less had seven more years experience. The reason: again an engineering degree.

West Coast Survey

Recently, the Merchants and Manufacturers Association of Los Angeles made a research study of the salaries paid by industries in that area. Included in the survey were four categories of purchasing positions, with these findings reported:

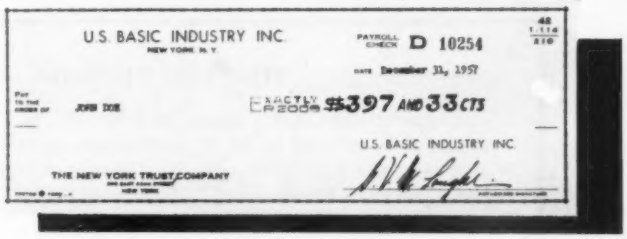
Purchasing Assistant (Buyer)
Weighted Average $6,144
Median $6,240

Purchasing Supervisor (Departmental Assistant)
Weighted Average $7,248
Median $7,350

Purchasing Agent (Senior Buyer)
Weighted Average $7,500
Median $7,380

Purchasing Agent (Departmental Manager)
Weighted Average $9,468
Median $9,600

Another, more informal survey was taken at a seminar last fall attended by 28 P.A.'s from the northeast. These men were either the number one or number two executives of their company or division within a large company. The average salary of the group was $11,514 and the median was $11,000. High man at the conference earned $18,500 annually while the lowest paid reported a figure of $7000.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Bonuses, too, play a role in determining the complete salary of purchasing agents. For instance, in the Los Angeles survey quoted above, the average bonus paid to departmental managers was $2729. Added to their average salary of $9468, it brings their total annual income up to $12,197. The average bonus of $540 granted to departmental assistants makes their total annual paycheck $7788.

And the AMA points out that the top executives in the purchasing departments of billion dollar companies—men whose salaries are at least $50,000—average $103,000 in bonuses each year. Thus their income is actually more than 200 per cent higher than actual salary figures would indicate.

An indirect method of determining purchasing salaries is by ascertaining the relative position of the purchasing agent in the company hierarchy. **Since it has become more frequent to have the P.A. present at plant staff meetings, it makes sense to assume his earning power is on the same level as most of the other members at the conference table.**

At a New Jersey automobile assembly plant operated by one of the "big three," the purchasing executive attends along with the production manager, quality manager, chief engineer and maintenance manager. All of these men are in the $15,000-$20,000 bracket and participate in the executive bonus plan at the end of the year.

Here's what one purchasing executive, who began in the engineering department, at another company says: **"It's true that engineers generally start at higher salaries than men who go into purchasing. But once both of them are at the administrative level, they're practically equal on wage rates."**

Demand for Positions

According to Edmond C. Bradfield, manager of the Port of New York Authority's classification and salary division, "salaries and salary range structures of purchasing are on a favorable level with" sales, accounting and industrial engineering. He feels P.A. salaries "are not the lowest, nor yet the highest, but they are in good company salary wise."

New York employment agencies report that want ads for purchasing positions generally result in a swarm of applications by qualified and interested men. One agency received over a score of applications last fall for an $8500 assistant purchasing agent position (however this deluge of applicants was due partly to the high amount of layoffs at aviation plants in northern New Jersey recently).

Governmental procurement officers—federal, state and municipal—are another large group in purchasing. Their salaries, while commensurate with other government officials on the same salary steps, are generally below those paid to P.A.'s employed by private industry.

Federal purchasing agents—with responsibility for actual procurement of material, equipment and services—start at grade GS-5 and receive $3670 a year. Requirements for the qualifying examination are a bachelor's degree or three years experience. Those be-

Research on Purchasing Salaries

"The most a top purchasing executive can reasonably expect to earn in straight salary is around $50,000 a year," says Dean Rosensteel, director of the American Management Association's Executive Compensation Service. "As it is, any purchasing executive who makes $25,000 a year is doing very well indeed."

Here are a few of the facts on purchasing salaries from the files of AMA's Executive Compensation Service:

(1) The average top purchasing salary in companies with a sales volume of $1 billion or more is about $50,000. With bonuses, total yearly income for these jobs averages around $153,000.

(2) The typical top purchasing executive who earns $25,000 would most probably be in a company with a sales volume of $100 million and a labor force of 8000. For a top purchasing job paying $10,000, company sales volume would be around $7.5 million and there would be 500-600 employees.

(3) For a purchasing agent who is second in command, reporting to either a director of purchases or a vice-president of purchases, the salary scale breaks down this way: If the P.A. is responsible for annual purchases of around $30 million, supervises 15-20 people including five or six buyers, he would earn between $12,000 and $18,000.

A P.A. who supervises three buyers and is responsible for a purchasing volume of $3 million would earn between $6500 and $10,000.

(4) Salaries for top buyers who report directly to the purchasing agent and who buy $800,000 worth of goods a year would be paid between $5000 and $8000. Salary for a top buyer with a purchase volume of $7 million would range between $8000 and $12,000.

(5) A company interested in hiring someone just out of college as a purchasing trainee can figure on having to pay around $4800 to get the man they want.

THE BIG PICTURE

Corporations, both large and small, have a fairly rigid chain of command in all departments—including purchasing—where the salary is generally commensurate with the job title. Here's a breakdown, both organization-wise and salary-wise of one division of a major mid-western manufacturer whose annual sales range runs well over $2 billion.

ginning at the GS-7 level, which requires either a year of graduate study or an additional year of experience, earn $4525 as a starting salary.

Sometimes the federal government announces examinations for higher salaried purchasing positions as procurement officers—men who plan, administer and direct various aspects of procurement programs. Vacancies for procurement officer (general), procurement officer (analyst) and procurement officer (contract administration) begin at grades GS-13, GS-14 and GS-15 ($8990, $10,320 and $11,610 a year respectively).

L. A. Trainee Program

The County of Los Angeles has an active program designed to recruit able young men into the purchasing field. The county starts its purchasing trainees at $4260 during a one year training program. Those selected for assistant deputy purchasing agent earn between $5004 and $6192.

Other levels in the Los Angeles purchasing and stores department are deputy purchasing agent ($6540-$8124), senior deputy purchasing agent ($8124-$10,104), chief deputy purchasing agent ($11,280-$14,040) and purchasing agent ($14,672-$19,524).

The complete picture of purchasing salaries, to be sure, is not altogether a rosy one. In spite of the forward-looking companies where purchasing executives are instrumental in determining policy and operations, too many instances abound where a man responsible for a multi-million dollar purchasing program is paid under $10,000. A number of companies still consider purchasing a clerical rather than a management function.

However the trend of the P.A.'s salary has been and will have to continue to be upward—along with his position in the company, his prestige and his overall responsibility. As one purchasing executive at a major oil company boasts, "my buyers aren't leaving to become salesmen. Why they're making more money than most of the guys on the other side of the desk!"

Blueprint for Cutting Replacement Costs

By getting blueprints on all the major equipment it buys, one company has been making tremendous savings on its replacement and repair costs. It's a simple, obvious technique—but best of all—it works.

THE PURCHASING department of a major eastern metalworking company is using blueprints to cut its replacement and repair costs 25-30 per cent. By getting blueprints on all the major pieces of equipment it buys, the company is no longer tied to the original equipment supplier for replacement parts or repair work. It can get competitive bids from a number of other suppliers. In actual practice, it's turning out that the original equipment vendor rarely gets the replacement orders. P.A. for the company reports that in roughly nine out of ten cases it's another supplier who's the low bidder.

One reason other vendors often quote a lower price on a replacement part than the original equipment supplier is that frequently the equipment builder does not make the whole unit himself. A heavy shear manufacturer, for example, may not make the shear blades. This means that when a customer wants a replacement blade, the shear manufacturer has to get it from another supplier. By the time the blademaker and the shear builder have both tacked on their price markups, the customer ends up paying quite a bit more than if he bought the blade directly from the blade manufacturer. In addition, just the fact that there is competition among vendors trying to land the replacement job is likely to bring the price down.

The purchasing department using this blueprint cost reduction technique has found it so effective that the request for blueprints is included on the purchase order whenever a major piece of new equipment is ordered. The company has also gone after blueprints on equipment purchased before the blueprint system was put into effect. It's paid out hundreds of dollars to get old prints, but the savings have more than justified the expense.

On some of its really old equipment replacement parts aren't available because the item is no longer being made. By getting hold of the old blueprints, the company has been able to keep some expensive pieces of equipment in operation which formerly would have been scrapped.

There's also another internal benefit from the blueprint program. If the company's business slumps off, the purchasing department checks its own machine shop to see if the job can be handled inside. This, of course, poses a make-or-buy problem for the P.A., but frequently it helps fill in the valleys in the machine shops production schedule.

Vendors Resisted

The P.A. who introduced the blueprint system at this company says that at first some suppliers balked at the idea of supplying prints. However, by being firm and by stipulating that the blueprints are part and parcel of the equipment purchase, the P.A. reports he has been able to overcome most of the resistance.

From his experience with getting competitive bids based on blueprints, the P.A. says he hasn't had too much success with electrical equipment. In many cases this type of equipment is so complex that only the original supplier is able to handle replacements and repairs. However, with forgings, bearings, shears, cranes, rolling mills and other major pieces of equipment he's found the program extremely effective.

"I won't say that using blueprints is a new idea or unique with us. But for any company that hasn't tried I'd say it's definitely worth looking into."

How to Cut Traffic Costs

There's a lot more to transportation costs than just freight rates. Other factors such as order quantities, packaging and f.o.b. terms affect the final price of goods moved into your plant. Check them before you buy and you'll save.

By Walter K. Cabot, General Traffic Manager
Johnson & Johnson, New Brunswick, N.J.

THERE ARE many factors, other than freight rates, that affect the transportation cost of your purchase. Each must be carefully analyzed and evaluated if the total cost is to be controlled.

Your traffic department, as a service organization, is ready and willing to help you. It wants to make sure you have all the pertinent facts on transportation costs, services and facilities involved in your proposed purchase. It wants you to know the alternates you should consider before deciding upon a particular supplier and entering into a contract with him.

Let's look back at some of these factors. Let's develop more detail, determine what information your traffic department needs from you and why they are interested in some matters, such as purchase terms, that at first glance may appear to concern only you and the supplier.

Freight Rates. Naturally I must treat this subject very generally. Rail rates are published by fourteen agencies, motor carrier rates by 84 agencies. In addition, there are thousands of other tariffs published by individual carriers and other transportation agencies.

The basic rate level—that applicable to railroad freight service—has increased about 108 per cent since June 30, 1946. Motor carrier rates, basically, have followed the same pattern. But that is not the whole story. On the smaller shipments motor carrier rates have increased a great deal more.

In the middle Atlantic states, for example, an arbitrary of as much as 60¢ per one hundred pounds is imposed on the base rate when the shipment weighs less than 2,000 pounds. When the shipment weighs 2,000 pounds or more, but less than 6,000 pounds, the arbitrary may be as high as 25¢ per one hundred pounds. These arbitraries vary in degree with the classification rating of the goods being transported, just as the basic rates do, but they do not vary with distance. In other sections, arbitraries of different amounts are used and the weights at which arbitraries come into play or are eliminated also vary. Rare, indeed, is the motor carrier rate territory that does not, in some manner, inflate the rates applicable on less-than-volume shipments. Now the railroads seem to be taking a leaf from the motor carrier book. On December 12 the Interstate Commerce Commission held a hearing on the eastern railroads' proposal to add an arbitrary to their rates presently applicable on shipments weighing less than 5,000 pounds.

Comparative Freight Rates. For many of the materials you purchase you have a choice of supplier and, I suppose, frequently the base price is comparable. Therefore, the freight rate that must be added to the cost is very important in determining your total cost, and in comparing prices if the goods are offered on a delivered price basis.

It is important that your traffic department have a complete and detailed description of the goods so that it can give you the true picture. Even if no specific commodity rates the supplier might overlook are applicable, your traffic department wants to be sure he is using the correct classification description.

Five years ago a large manu-

Abstracted from an address to the Purchasing Agents Association of New York.

facturer obtained a ruling to the effect that some of its products were properly described as Machinery, NOI rather than Optical Equipment. As a result his LTL rates are based on 92½% of First Class rather than 200% of First Class, and his truckload rates are 45% of First Class rather than First Class. Yet, his principle competitor failed to note the publicized ruling and is still using the Optical Equipment description. That's costing him thousands of dollars in freight charges annually.

If there is no commodity rate presently published on an item, and a steady volume movement is anticipated, perhaps your traffic department can have a more reasonable rate established. Give them plenty of time, because the process of rate publication is apt to be slow and tedious. Generally, they must select the carrier they will use on the prospective move, and work out with him a mutually agreeable rate. He will docket the proposed new rate with the governing freight rate bureau. After a public hearing is held, and other carrier members of the bureau agree the rate is just and reasonable and will not disrupt established rate schedules, the rate is published in tariff form and filed with the Interstate Commerce Commission to become effective in not less than 30 days. During this period the Commission on its own motion, or upon request of interested shippers or carriers, may suspend the effective date and start a long procedural action in which the carrier with your support must prove the rate is reasonable and justified. Such actions can take months and even years. Such a rate change obviously can be undertaken only in connection with long range planning. Of course, if the traffic is moving your traffic department will sometimes do the same thing to get reductions in the rates they are now paying or to get rates equal to an adjustment in some other competing area.

If any of your buys deal with freight equalization you should have a record of the current rates applicable from various points of supply to your plant and to the plants of your competitors.

Shipping Quantities. As you know, there is a 30 per cent or more spread generally established between CL and LCL shipments and between TL and LTL shipments. This spread is increased if carload or truckload commodity rates are in effect. I have already indicated the additional rate arbitraries placed on shipments of less than 5,000 or 6,000 pounds. When considering the purchase of high volume items you should know on what quantity carload, truckload and volume rates are applicable. Then set the delivery schedule to take advantage of the lower rates wherever possible. We in traffic realize, of course, that you sometimes cannot go as far as we would like in this respect. We realize you must consider unit prices, the cost of monies invested in inventory, available warehouse space, handling costs, deterioration and other factors. We just want to be sure you are aware of the freight rate benefits to be realized from volume shipments before you enter into a purchase contract.

If you cannot buy in optimum freight rate quantities there are still avenues of relief open to your traffic department.

Between most areas both the railroads and motor carriers maintain liberal stop-off rules. These permit you to partially load a piece of equipment at one supplier's and stop at other points to add more freight to complete the load. The through carload or truckload rate from origin to destination will apply on the total final weight. But the resulting charge, plus nominal stop-off charges, may be far lower than the total cost of moving each of the shipments separately in LTL or LCL service. Similar provisions apply on stop-offs for partial delivery. Such an operation, naturally, calls for coordination between purchasing, traffic and the supplier. But the savings in freight costs can be substantial and there are additional benefits—it's easier on the receiving department; transportation is often safer.

Coordination of the purchasing of different items can also produce transportation charges if certain items are mixed in a carload or truckload, either from one supplier or from several suppliers in connection with the stop-off privilege.

Between many points the freight forwarders offer good service on LCL and LTL quantities.

Between most areas both the railroads and motor carriers maintain liberal stop-off rules for partial delivery or loading. The through truckload or carload rate from origin to destination will apply on the total final weight.

Their service will not equal motor carrier service, but they will better the LCL performance of most railroads and their rates will be comparable with the latter.

If a steady volume of very small shipments is expected from a relatively restricted geographical area, it will pay purchasing and traffic to look at the problem together. They can decide if it might not be a good idea to use an assembly agent who would consolidate and forward the shipments in a larger unit.

Packaging and Loading. Packaging's job, obviously, is to protect goods in transit and in storage, and confine the contents in an easily handled unit. Because freight charges are based on gross weight, it follows that the packing material is assessed at the same rate. For this reason, it is natural to limit the weight of the packaging material as much as possible and to use the cheapest cost protection. According to the degree of protection afforded the goods and the stowability of the package in trailers and box cars different freight rates are frequently established dependent upon the type or form of package used.

The type of container and form of packaging can also greatly affect the handling costs of your receiving and stores operations. Some commodities are well adapted to bulk packaging in tank or hopper cars or trailers, or in tote-bins that can be readily moved on pallets or directly by fork trucks. Receipt of such commodities in this form may require some alteration of equipment at the point of entry into the production line. But it will produce substantial savings in labor costs. Where possible, packaged goods should be in cases or bags that can be readily palletized.

Also remember the basic rule that the freight rate applicable to any package is the highest rate applicable to any item in the package. Big savings can often be realized by segregating the different components of the package into two or more packages according to their freight classification.

The method of loading freight in trailers and box cars should be specified where certain types of equipment or certain stacking practices may cause damage or increase your unloading costs. It may be that your supplier has to stow freight in a way that makes it difficult for your receiving crew to break the pattern. A little forethought, with loading directions specified on the purchase order, will help them and not burden him. It's better to make such arrangements in advance, than through telephone calls and correspondence after the first difficulty has been encountered.

Transit Time. Perhaps the most dramatic examples of excessive freight costs are those that must be paid for premium service to insure the arrival of the needed material in time to meet production schedules. There are always going to be emergencies where an urgent need deveolps without any advance warning. Some of these cases will be so severe as to justify the expenditure of unlimited funds for transportation. These emergencies should, however, be by far the rare exception. I cannot urge you too strongly to plan sufficient lead time to permit use of that transportation service that will give you the best regular, consistent service at the lowest possible cost. When such lead time is available your traffic department has a better chance to save money through volume shipments, stop-offs and consolidations. Every time a supplier has to use abnormal routings at premium rates, through his own fault, you should seriously consider charging back the excess freight costs.

Delivery Protection. Regardless of the terms of sale and who pays the freight charges, your traffic department should be notified by the supplier when shipments have been forwarded. Often you have to ask the traffic department to reach out and locate a shipment in transit in order to insure its prompt delivery. If they have a record of that shipment on hand valuable time, sometimes running into days, is saved. As a minimum the information needed is the name of the consignor, actual shipping point and date, billed destination and route. With carload or truckload traffic they should have the car initials and number, or trailer number. On less carload, less truckload, freight forwarder, express and air shipments they should know the number of pieces and total weight. In every instance it is a big help if, in addition, they have the shipper's bill of lading number and the carrier's waybill, pro or receipt number.

Terms of Sale. The F.O.B. terms should be clearly and simply stated so that there can be no doubt of exactly what those terms are intended to and do say. F.O.B. terms denote, of course, the point at which title to the goods passes from seller to buyer.

There are certain advantages to your traffic department when a purchase is made F.O.B. destination:

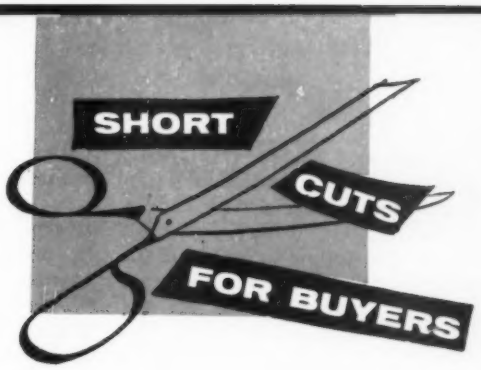
1.—Title does not pass to buyer until delivery by the carrier. Thus the seller is responsible for processing all claims for loss and damage with the carrier. He must assume the risk for losses suffered by the goods in transit when such losses are caused by acts beyond the carrier's control—such as floods and tornadoes. The premiums for insurance coverage on the shipment are also the responsibility of the seller.

Where the goods in question are so general in nature as to bear no identity to your company, it makes little difference to you what disposition is made of the salvage. Where your name is identifiable with the goods, such as on finished goods and perhaps partially processed material, you may want to prohibit the disposal of salvage through commercial salvage channels. Its ultimate use is unknown and it might impair your reputation for quality. When ownership and disposition of such material is in the seller's hands you have no such control.

When the damage is caused by acts not within the carrier's control and recovery from the carrier is impossible you, of course, would not object to the seller bearing that risk.

Whatever insurance premiums are paid by the seller, for specific or overriding coverage on an F.O.B. destination shipment while in transit, will certainly be in-

(*Please turn to page* 188)



Three Forms for Efficient Follow-Up

Buyers do their own follow-up at Rohr Aircraft. But when shortages develop, everyone must keep informed. The whole job is done efficiently with just three forms.

The follow-up copy of the purchase order becomes a complete record of every follow-up action by the buyer. There's space for additional information on the back.

ROHR AIRCRAFT is by no means a giant in its industry. Yet the purchasing department of its Chula Vista, Calif. plant issues over 6000 purchase orders a month. The company makes "power packages" (an assembly of the engine and all its accessories ready for mounting with but a few bolts in an airplane) for both military and civilian planes. It must rely upon thousands of specialized suppliers for the parts and components for its complicated power packages. And, of course, a constant stream of engineering changes is normal in the aircraft industry.

This makes a certain number of delivery problems on purchased parts and materials "normal" at Rohr. Changes must be made and purchasing must make sure they're made on schedule. "Let's face it," says Rohr Purchasing Agent L. W. Jones, "we might just as well accept the need for speed as a basic part of our jobs. If the company and its customers can benefit by stepped-up delivery on certain orders or if a change must be incorporated, it's up to purchasing to do the best job it can."

Purchasing does its job delivery with three very simple forms. In fact only one of them—the follow-up copy of the purchase order—is printed. The other two are "do-it-yourself" jobs with the office duplicating machine.

Buyers Record

The buyer's guide is the follow-up copy of the purchase order. In most respects, Rohr's form isn't too much different from those used in hundreds of other purchasing departments.

On the upper part of the form is basic order information. Below this is the agreed upon delivery

schedule and space for follow-up notes to indicate the vendor's performance in meeting the schedule. What's actually different at Rohr is that the follow-up copy of the order is used for the purpose for which it was designed. It's the buyer's working copy of the order. And if no big delivery problems develop, this is the only paperwork involved in follow-up. The buyer makes notes at the bottom of the order and there's no transcribing to separate records.

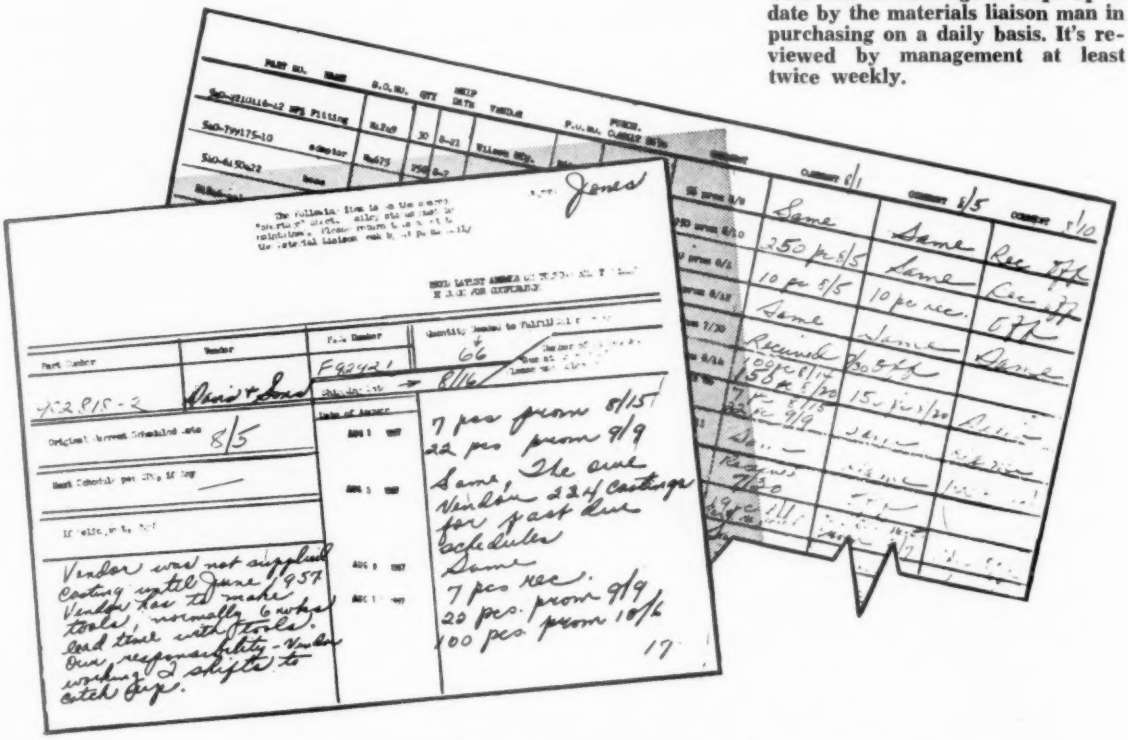
Problems Do Develop

Should a shortage actually develop, the other two forms in Rohr's follow-up system come into use. The more basic of the two forms isn't prepared in purchasing. It's just an old-fashioned shortage report. It's made up in material control and is simply a list of parts that are needed in manufacturing. Space is left on the report for comments on delivery status and a daily review is made to check changes in status. This report is everyone's "bible" on delivery. Purchasing Agent Jones reviews it daily to keep tabs on changes in delivery status and to try to head off problems before they reach the crisis stage.

Comments on the shortage report are posted by the materials liaison man in purchasing. He, in turn, gets his answers directly from the buyers. One way to get the answers would be to pass the shortage report around to the buyers for their comments. This would be time consuming. Instead a special form (the third in Rohr's follow-up system) is used to save time.

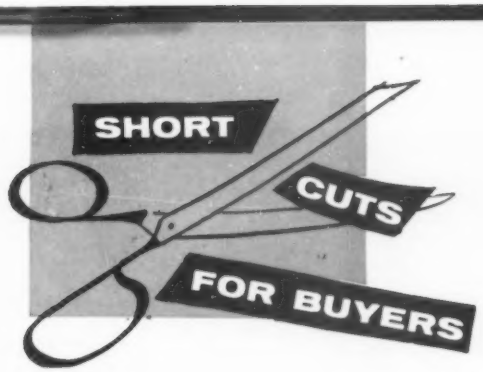
The form is made up (in pencil) at the time the part begins to become "hot." Each day the buyer checks status and notes his comments on the form. The information is transcribed to the shortage report and the form is then returned for the buyer's comments on the following day.

Management reviews shortages as necessary. But it always reviews the shortage master at least twice a week at regularly scheduled times on Tuesday and Thursday afternoons. Although Purchasing Agent Jones doesn't pretend that his department can get stuff overnight that should take weeks to get, he says he's "sometimes surprised at the results that are achieved." One thing is certain. The pressure isn't letting up at Rohr. In one month recently, 51 per cent of the purchase requisitions called for delivery in three days or less!



This master shortage is kept up to date by the materials liaison man in purchasing on a daily basis. It's reviewed by management at least twice weekly.

This form shuttles back-and-forth between the buyer and the material liaison man who prepares the master shortage report. Last entry indicates latest delivery information.



Small Order Procedure Cuts "Red Tape," Preserves Control

Avco's Lycoming Division licks its small order problem with a procedure that both cuts paperwork and eliminates the shortcomings of petty cash purchasing.

MOST COMMON solution to the small order problem is a petty cash procedure. It eliminates a lot of paperwork. But it also has major shortcomings. When you buy with petty cash, you usually:

1. Forego cash discounts from suppliers. This, in effect, increases your costs by one to two per cent.

2. Increase the amount of cash being handled in the company. Unless there are special controls, this is not good practice.

3. Encourage "rush" requisitions from the shop. When you know you can get something just by going out and paying cash for it, why plan ahead for your requirements? In extreme cases, the added cost of scurrying around on an increased number of rush jobs can more than offset the saving in paperwork possible with petty cash buying.

4. Get occasional waste. When individual shop departments are permitted to make small, petty cash purchases, this saves the purchasing department quite a bit of work. But it can also result in one department buying an item that is in stock in another department. It doesn't take much imagination to see how the situation could easily get out of hand.

What's the Answer?

Nevertheless, it's still ridiculous to spend $3 or $4, or even more on the additional clerical work necessary for conventional purchasing procedures when the order might call for a half-dozen small drills worth 50¢ each. The fact is petty cash purchases can save on paperwork. That, of course, is why they are becoming so common.

One place where they're becoming less common is the Stratford, Conn. plant of Avco's Lycoming Division. Purchasing Manager G. J. Rapuano has been able to drastically reduce the number of petty cash orders that are issued. This, in itself, is no great accomplishment. The real achievement is that Rapuano has done this and reduced costs in the process. He's done it with a variation of a practice that's by no means uncommon: the blanket order.

Lycoming gives each of five mill supply houses in the Bridgeport area blanket orders every month. There are 30-40 items on each order. The orders are limited to off-the-shelf items that usually have standard prices. Each transaction must be for less than $25, but it averages about $10.

When a requisition comes in for one of the items listed on the blanket orders, the buyer calls the vendor to see if it's in stock. If it is, he gets the price and places the order over the 'phone. He assigns an item number to the purchase and both gives it to the vendor and notes it on the requisition. Use of the item number helps prevent invoicing problems from developing.

Instead of the purchase order for the conventional transaction, the buyer makes out, in pencil, a simple 5 x 8 "Request for Petty Purchase" form. On it (see cut) are all the necessary details of the purchase. One copy goes back to the requisitioner so he can clear his records. Another goes to the traffic department.

Pick-up Service

Twice a day—at 10 a.m. and 2 p.m.—traffic dispatches a truck to make pick ups from mill supply houses. The petty purchase forms are the authority to make the pick-up. However, they do not go to the vendor. Instead, they're returned with the merchandise and are used by receiving to prepare a conventional receiving report.

The vendor gets no paperwork from Lycoming at the actual time of purchase. Nor does he invoice immediately. Instead, he waits until about the 25th of the month when he gets a change notice against his blanket order from Lycoming. The change notice lists,

by item number, everything bought during the month against the blanket order. It is the vendor's authority to invoice. From this point on, conventional purchasing and accounting procedures are followed.

With this procedure, Avco purchasing makes a purchase order and a change notice do the same job as perhaps 25 or 30 different purchase orders were an order issued for each item. This helps to substantially reduce the workloads of the girls typing and processing orders. An even bigger saving in paperwork is made in Lycoming's accounting department. The number of invoices that are processed is cut from 25 or 30, to one for each blanket order. And, of course, the vendors aren't exactly unhappy about having less paperwork.

Currently Lycoming is spending about $1700 a month with its petty purchase procedure. So far there have been no "bugs" in the system; everything has worked very smoothly. In fact, Purchasing Manager Rapuano believes the pick-up procedure has brought an added saving which is, however, difficult to measure. It is lower inventories of off-the-shelf items. Now, to a greater degree than previously, Lycoming is using local mill supply houses as a "hidden stock room" for standard items.

Lycoming purchasing, interestingly enough, developed its petty purchase procedure almost in "self-defense." It was looking for a way to give the same service as the petty cash procedure and preserve the advantages of conventional purchasing procedures. The result is its present petty purchase procedure. Like the old petty cash procedure, it's limited to items available from local sources with a value of less than $25.

Other Cost-Cutters

The petty cash procedure is by no means Lycoming's only application of blanket orders. Fuel and similar commodities are bought on blanket orders. In this case, because of the greater dollar value of the orders, the buying is done competitively. The buyer gets his previous year's usage of the commodity and the vendor bases his quotation on this quantity. Then a blanket order is issued covering the coming year's requirement. Lycoming also still uses petty cash orders under certain circumstances. In every case, it's up to purchasing to determine the most economical method of purchase.

Despite the fact that he's tried to make use of every known technique to keep down paperwork costs, Rapuano admits that paperwork—particularly on small orders—still is a problem. In the aircraft industry, even production parts purchases are often for extremely small quantities. How do you handle the purchase of 50 gaskets worth 1¢ each in an economical fashion? The vendor loses money because of paperwork almost regardless of what price he charges. "In some cases, the quantities are so small that the suppliers would rather give us the stuff for nothing rather than get involved in the paperwork," says Rapuano.

Lycoming's truck makes two pick-ups a day from the five Bridgeport area mill supply houses cooperating on the small order procedure.

P-45 LYCOMING · AVCO

Voucher No:

REQUEST FOR PETTY PURCHASE

To E. MARSHAK Date 8-12-57

From D. WYATT Dept. PURCH.

Req# 333411 WA-80260

DESCRIPTION OF MATERIAL REQUIRED 12 - #32 SS DRILLS.

CODE 794-494

ESTIMATED COST .45 EA

SUGGESTED VENDOR LUNDQUIST HARDWARE

VENDOR'S ADDRESS:

DELIVER MATERIAL TO E. LARKIN MASTER CRIB TT

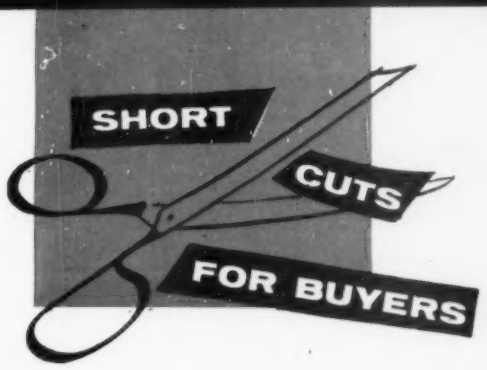
CHARGE TO WRIGHT ( ) JET ( )

REMARKS

PICK UP 8-13 A.M

MATERIAL RECEIVED BY: AUTHORIZED BY: D. Wyatt

With Lycoming's small order procedure, purchasing uses one copy of this form to notify the requisitioner that the purchase has been made. Another copy goes to traffic and is the authority to pick up the material.



Code Your Profit

By Harold C. Barnett

Many purchasing departments shy away from classifying and coding purchased parts because of the tremendous amount of work involved. It can, however, be extremely fruitful. Denison Engineering Division of American Brake Shoe in Columbus, Ohio is one of the many companies now enjoying the benefits of a complete code system.

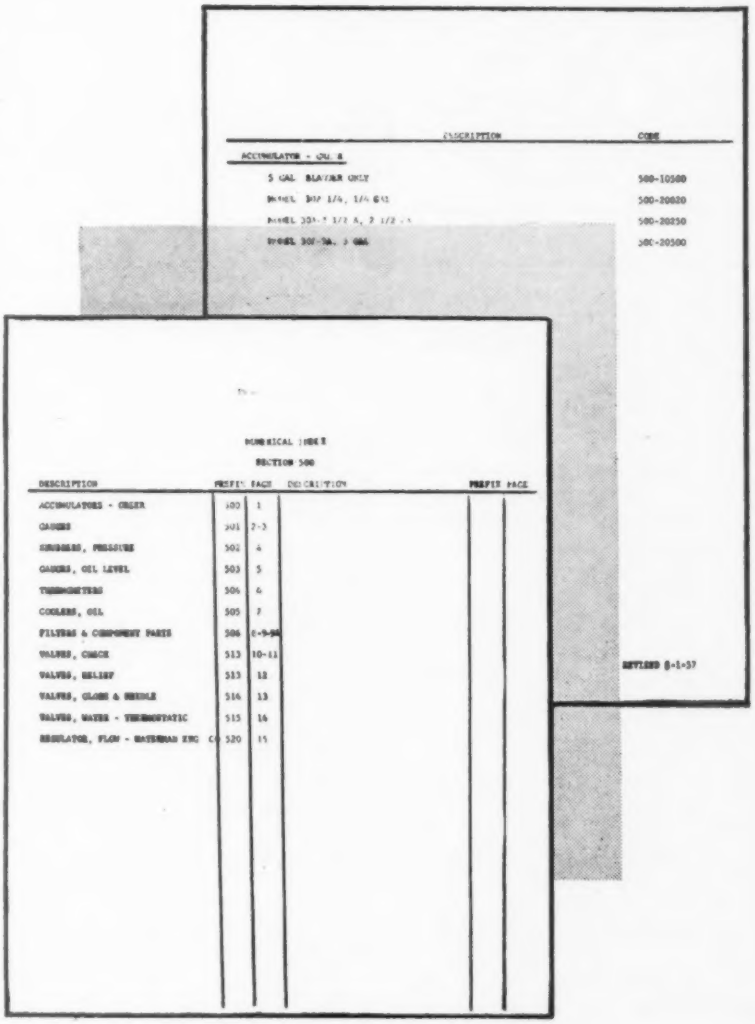
THE DENISON Engineering Division of American Brake Shoe Company in Columbus, Ohio has completed one of the toughest jobs in purchasing—setting up a code system for purchased and stocked parts.

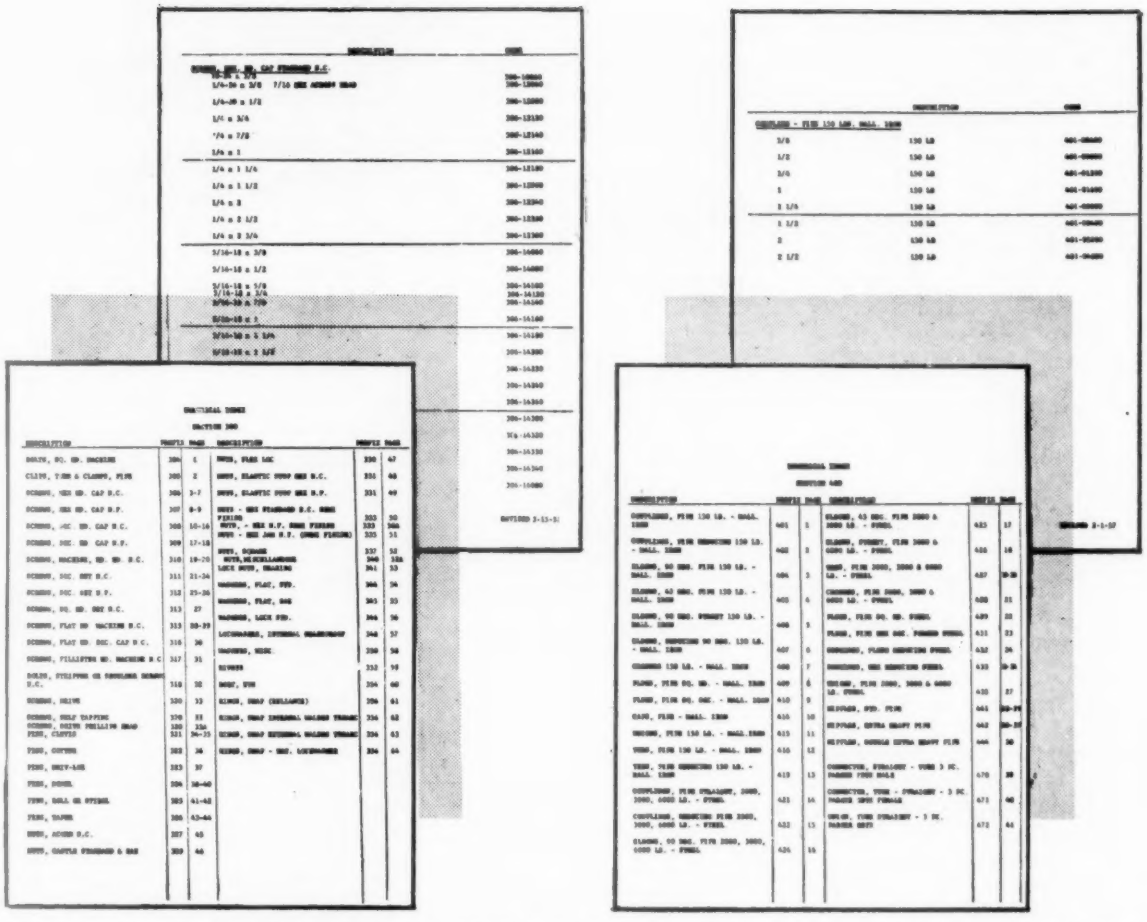
With 7000 purchased items in stock, Denison was faced with the problem of establishing a system that would be compatible with the punched card system in the tabulating department. Also, they were determined to eliminate the two or three inches of space it took to write the specifications for items that individually might not be as long as a thumbnail.

After many trials and experiments, the engineering department in cooperation with purchasing came up with a Parts Code System of which they can be (and are) proud.

Carl Lindahl, director of purchasing at Denison — who also served on the engineering staff for 15 years before moving to purchasing — says he can't estimate how much the Parts Manual actually cost. But he does know that the savings achieved since its installation have paid for the system many times over.

Progress came fast after a staff assistant was hired to work exclusively on the conversion. He was assigned directly to the staff of the chief engineer although he





The manual used at Denison Engineering consists of six sections; preceded by a numerical index of coded parts.

was to work closely with purchasing and the other departments.

Determine Classifications

The next important step for this well-known manufacturer of the Multipress Line and other hydraulic products was the determination of major classifications. The ten selected are:

35—Denison Manufactured Detail
935—Castings to Denison Detail Number
100—Electrical Items
200—Mechanical Items
300—Fasteners
400—Fittings
500—Hydraulic
600—Seals
700—Details Purchased to Denison Print
800—Raw Material

Each stock item was analyzed, first, to determine that it was active; and, second, to decide without question which of the ten classifications it belonged in.

At the outset it was planned that every department would have a copy of the completed manual, so when questions arose as to the proper classification of certain "hard to classify" items it was imperative that it be discussed with purchasing, sales, engineering, accounting and production control. In many instances more than one department was consulted.

The completed manual consists of an alphabetical index and six sections which comprise all parts purchased and stocked. Each section has a numerical index of the coded parts in that section.

The pages for each section are numbered independently of all others. For example, section 300, page 20 will be the 20th page of section 300; while section 200, page 20 will be the 20th page of section 200.

The basic code itself consists of a total of 8 digits with a dash following the first three. The first three are (as shown) for series identification, while the next, or last five, are for detail identification.

All internal communications and purchased parts in stock carry the parts code number thereby eliminating a tremendous amount of writing. The only place that "screws, hexhead, cap national course, ¼ x 1¼" would appear, for instance, is on the actual purchase order. For every other occasion that requires writing or mentioning this product, "306-12180" would be used instead.

G. T. Hays, purchasing agent, says, "Without the parts code system, it would be virtually impossible to use the punched cards for inventory control and determining the reorder point. It has been a tremendous help."

Case History Method Trains Purchasing Executives

By Walter E. Willets, Purchasing Agent, Conover-Mast Publications, Inc., New York

THE CASE history method involving the "Randolph Works" Case helped stimulate purchasing management thinking among 28 top purchasing executives at West Point recently. The occasion was a three-day Purchasing Management Workshop sponsored by the Purchasing Agents Association of New York.

Meetings ran all day, with discussion of the Randolph Case each morning. Afternoons and evenings were devoted to depth penetration of specific purchasing problems. Goals of the workshop were:

a. To improve skills in planning and organizing a purchasing department.

b. To improve ability to operate a purchasing department.

c. To develop improved techniques to measure performance of a purchasing department.

d. To re-examine the skills, tools and procedures of management.

e. To exchange thinking and experience in the development of possible solutions to common management problems encountered in the administration of a purchasing department.

The "Randolph Works" was a mythical wood office furniture concern. It had just been purchased by a multi-plant metal office furniture company seeking diversification. Each morning the full workshop met for a presentation of the day's problem. Then it broke up into four groups of seven each. These groups discussed the problem independently for 75 minutes. After this the workshop reassembled to hear each group's report and discuss the findings.

Planning and organizing the purchasing function was the topic on opening day. Among the questions discussed were: How do you go about surveying the present operation? What types of information do you require? What recommendations would you make? After the reports the results were summarized for the following day's meeting.

On the second day the task was operating the purchasing department. Joe Apperson, the fictional P.A. in question, was assigned to run the department for one year. He was given three goals: reduce costs of materials purchased by 5%; establish a purchasing department for the Randolph Works; and eliminate duplication of orders with other plants of the parent company.

The final day was devoted to measuring purchasing performance. The department had been operating for a year. Now Joe Apperson had to report to his management. How should he report? What had he accomplished? How could he show it? Included in the factors considered were policies, personnel, training, work load, supplier relationships, and service to other departments.

Background material presented to the participants was limited to a one-page outline each day, plus a single page summary of the Randolph Works. Members of the workshop staff were on hand to supply additional facts only if requested. Where no background material was given the project groups were to make logical as-

Educational sub-committee members in charge of the Workshop. L to r: Walter Willets, Conover-Mast Publications, Inc.; Randall McMillin, National Broadcasting Co.; James McAleer, General Electric Co.; John Bion, Consolidated Edison Co.

sumptions based on their own experience. This worked so well that the staff did not receive a single request for additional information.

There were two reasons for using a short case history method. First, the course was designed for key purchasing executives already familiar with basic principles and practices. Second, the information given was similar to possible actual situations. In practice a man would have to do his own research. The short histories also allowed for more actual project time.

The most interesting outcome of the case study method was its ability to keep project groups concentrated on the subject at hand. Extraneous discussion was eliminated. Agreement of the four groups reporting independently was very good. For example, given a salary budget for operating the purchasing department, three out of the four groups recommended the same salary scale for the P.A. and his assistant. Three groups also suggested eliminating a proposed expediter and combining his function with that of one of the buyers.

The morning discussions of the Randolph Works Case set the stage for the afternoon meetings. In these small project groups each took a specific purchasing problem and discussed it in depth for up to two hours. They then reported back to the workshop as a whole. In this way four major areas were covered each afternoon. Again the three days were scheduled to fit the workshop outline of planning, operating, and measuring performance. Topics covered included purchasing job descriptions, work simplification, value analysis, purchasing cost reduction, and reports to management.

Among the techniques used during the workshop were discussion groups, slip-writing, brainstorming, and flannelboard presentations. There were no outside speakers, as this was a shirtsleeve workshop. The group lived at the Hotel Thayer at West Point for the three days. This helped prevent interruptions and eliminated trips back to the office. It also gave participants time for informal discussions in the evening.

Group reports were placed on "Vu-Graph" slides and projected on a screen for discussion. Following the meeting, a summary of all the reports was prepared and sent out to the participants.

Richard B. Johnson, then Training Coordinator of The Port of New York Authority, was Workshop Director. The program was planned and run by the Educational Committee of the Purchasing Agents Association of New York.

Workshop Director Dick Johnson leading a discussion group at the Hotel Thayer, West Point, N. Y.

Evidence of the success of the workshop was the table conversation in the Hotel Thayer dining room. P.A.'s were talking shop even at breakfast!

Where to find PURCHASING Features

SEVERAL OF the features you regularly enjoy in PURCHASING have been shifted because of the changeover to a new bi-weekly format. Here are the new locations for some of the sections you've been enjoying in every issue:

PULSE OF BUSINESS: Now starts on page 7 of every other issue, beginning with this one. It will alternate with a new feature —

PURCHASING PREVIEWS, a round-up of economic news interpreted for P.A.'s, which will also start on page 7 of every other issue, beginning January 20.

PURCHASING OPINION POLL will also appear in every other issue, beginning January 20. Watch for it regularly on page 19.

F.O.B. has been moved forward to page 62. You'll find some particularly interesting news in the current column.

READER SERVICE CARD has been redesigned into a more convenient form. It can be found facing page 32 in every issue.

HIGHLIGHTS of the issue have been combined with the Contents Page, which remains in its usual place—page 5.

Architects and Engineers:
Leo A. Daly Company of Omaha

◀Here in the "day old" nursery, Nibroc Towels are always within easy reach.

▲New $5 Million, 300-Bed Bishop Clarkson Memorial Hospital, Omaha, Nebraska.

NIBROC® Towels

give us Maximum Sanitation at Lower Cost, says Mr. Hal G. Perrin, Administrator

Bishop Clarkson Memorial Hospital was named 'Modern Hospital of the Year' in 1955—an award based on efficient planning and construction. Part of the planning was the installation of 100 Nibroc Stainless Steel Dispensers for quick-drying Nibroc Towels.

"Well over 2,000 hand washings daily appear to be our use figure," says Mr. Perrin, "and our cost per towel runs about a third of a cent—giving us hygienic protection at a very low cost.

"Nibroc Towels are also used on sterile treatment trays as coverings. We find they are highly absorbent, do not shed fuzz or lint, and are completely without odor, a most important factor in a hospital."

Why not learn for yourself why Nibroc is America's most widely used towel in business, industry and by institutions.

Look in the phone directory under "Paper Towels" or write Dept. GN-1, Boston, for name of nearest Nibroc distributor.

SEE Sweet's Catalog for information about Nibroc Cabinets—wall, floor model and recessed.

BROWN COMPANY, Berlin, New Hampshire
General Sales Office:
150 Causeway Street, Boston 14, Mass.

For More Information Write No. 212 on Inquiry Card—Page 32

Are Escalator Clauses Valid?

The courts have said you don't have to accept an adjusted price unless, 1) you've agreed to do so, 2) the method of determining the price is clear and definite, 3) the price is measured against a known standard.

By Albert Woodruff Gray

IN A contract for the sale and delivery of structural steel in the erection of a building in New York City was the clause, that in the event the "prices for component materials" increased or decreased there should be a corresponding adjustment of the contract prices calculated in accordance with an agreed formula, with a limited maximum increase of $15.00 a ton.

When the contractor refused to pay an increase of $10.00 a ton, based on the price of steel regularly charged to the trade, the steel company filed a lien for $94,-861.15 and sued for its foreclosure.

The contractor argued that the contract was void since the steel company under this clause had arbitrary power to change the price terms as it saw fit. In other words, that an escalation clause of this character, to be valid, must be based on some extrinsic standard by which the price modification could be determined.

The New York State Court of Appeals, in sustaining a judgment against this contractor and in favor of the steel company for the amount of its lien, said, "This escalation clause provided for increases or decreases in accordance with changes in the steel company's regular prices to all purchasers of plain steel products and such a provision does not give the steel company undue power of determination of the contract price."(1)

When the determining standard in the application of escalation clauses fades and the purchase contract price terms slip beyond the boundary line within which the courts will enforce such provisions, there is suggested the ancient proverb of Chinese philosophy, "The difference between certainly and perhaps is not much after all."

On the other side of this boundary line is the decision of an action recently before the courts of that same state. Suit had been brought by a concrete dealer for damages occurring from the refusal of buyer to accept deliveries under a purchase contract.

This contract contained the clause, "The failure of the seller to make deliveries because of unexpected congestion of notices of delivery on outstanding contracts or any other causes, shall relieve the seller from any liability for damages caused to the purchaser thereby and shall relieve the seller in addition from any obligation under this contract, but seller shall not be responsible for purchaser's damages, if any, occasioned by delays in delivery regardless of cause."

Here on the purchaser's application to the court for a dismissal of the action on the ground that the agreement was unenforceable, the judicial response was both sharp and clear. "Where a promissor retains unlimited right to decide later the nature or extent of his performance, the promise is too indefinite for legal enforcement. The unlimited choice, in effect, destroys the promise and makes it merely illusory."(2)

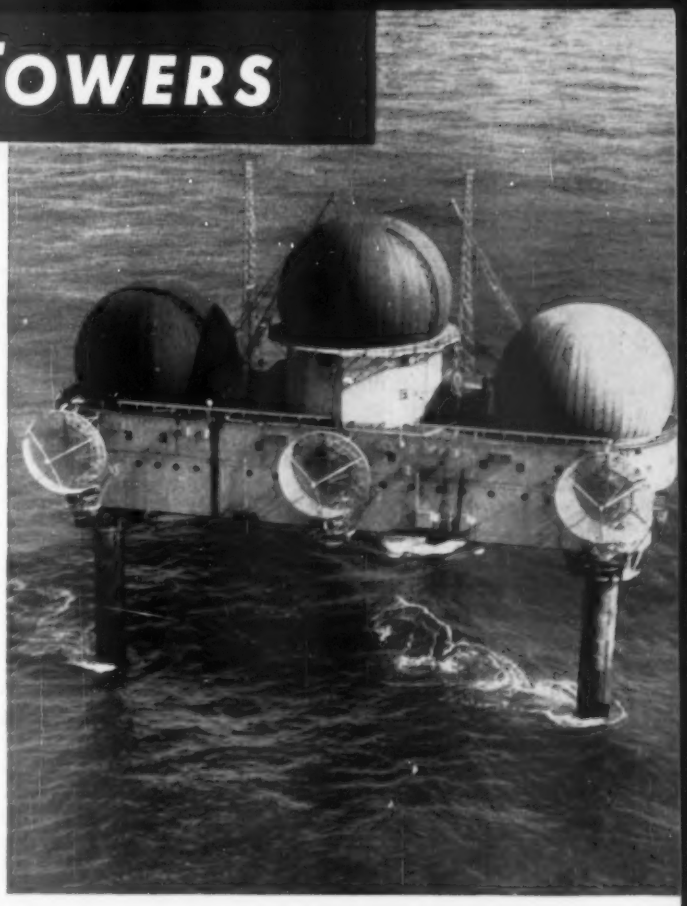
This same feature occurred in

Send me over a box of corn flakes and charge it. How much is it?
I'll have to price it later when I see how the corn market is going.

WHERE PROMISOR RETAINS UNLIMITED RIGHT TO DECIDE NATURE OF HIS PERFORMANCE, THE PROMISE IS TOO INDEFINITE FOR LEGAL ENFORCEMENT

For More Information Write No. 213 on Inquiry Card—Page 32→

ON TEXAS TOWERS



Wallace Process Piping Co., Inc.

Used

MIDWEST

WELDING FITTINGS

Among the unique installations for preservation of peace are the early warning radar "Texas Towers" off the Atlantic Coast. These artificial islands stilted to the ocean floor keep watch by radar. As is true of many defense projects, Midwest Welding Fittings played a significant part on Texas Towers.

Midwest Welding Fittings are found on unusual and in critical as well as routine jobs because of exceptional quality maintained by rigid standards of manufacture. Quality control is always above and beyond code requirements.

Whatever the piping job, you will find it to your advantage to use Midwest Welding Fittings. The many benefits you get by specifying "Midwest" are shown in Catalog 54. Ask your distributor or write us for a copy.

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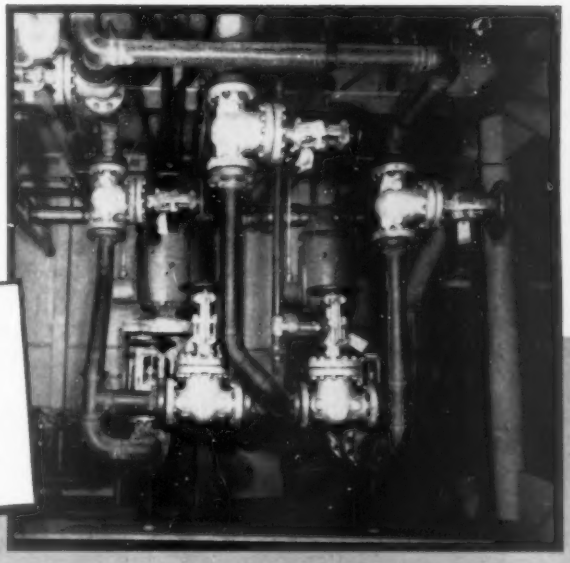
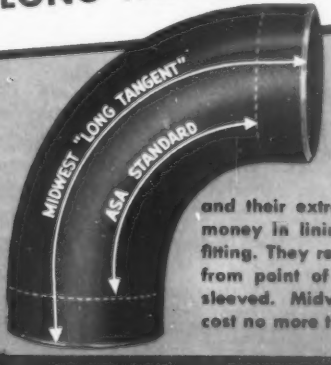
ONEIDA, N.Y.—282 NORTH MAIN ST. • PITTSBURGH 19, PA.—437 GRANT ST.
ST. LOUIS 4—1450 S. SECOND ST. • SAN FRANCISCO 11—420 MARKET ST.

STOCKING DISTRIBUTORS IN PRINCIPAL CITIES



MONEY SAVED With MIDWEST "LONG TANGENT" ELBOWS



Here are the important advantages of Midwest "Long Tangents": They save pipe. They often eliminate short nipples and their extra welds. They save time and money in lining up and clamping pipe and fitting. They remove the circumferential weld from point of maximum stress and can be sleeved. Midwest "Long Tangent" Elbows cost no more than other elbows.

Piping on two Texas Towers was installed by Wallace Process Piping Co., Inc., as subcontractors to Steers Morrison Knudsen and Continental Copper & Steel Industries, Inc. All welding fittings were supplied by Midwest through Central Jersey Supply Co. The many advantages of Midwest "Long Tangent" Elbows were an important factor in the selection of Midwest fittings for this critical work.

7901

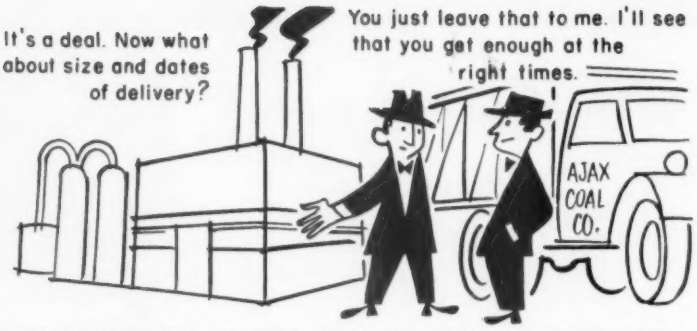
MIDWEST WELDING FITTINGS IMPROVE PIPING DESIGN AND REDUCE COSTS

a contract made by a manufacturer of school furniture with a jobber. The essential yardstick was lacking; a standard by which performance or the failure to perform could be definitely measured and on which the other party to the agreement could depend.

In this suit in the federal court in Illinois the jobber recovered a judgment for $16,105.67 against the manufacturer for the manufacturer's failure to ship approximately 5000 school desks and chairs. In the contract however, it had been stipulated, "All prices are subject to adjustment to prices in effect at the time of shipment."(3)

The essential feature to any provision of this character was lacking here, a method for determining a price that was certain and beyond the wish or control of either of the parties. In its reversal of this judgment and holding the contract, for this reason, void and unenforceable the court adopted a ruling made by that same court in a decision rendered a few months before.

"A contract in its nature and character and according to the intention of the parties, should involve and impose a reciprocity of obligation and duty. And it is hornbook law that to make a valid executory contract there must be at least two parties capable of contracting and both must be bound thereby. The promises of each must be concurrent and obligatory on both at the same time to render the promise of either binding. And the law is well established that a contract for the future delivery of personal property cannot be enforced if the price of the article to be delivered is conditioned entirely on the will of one of the parties."(4)


It's a deal. Now what about size and dates of delivery?
You just leave that to me. I'll see that you get enough at the right times.
AJAX COAL CO.

WHEN PURCHASER HAS NO VOICE IN FIXING FUTURE PRICES, ESCALATOR PROVISIONS ARE INVALID

Another contract with this same ill-starred omission of a standard for determining a future price in the sale of 900 tons of strawboard, stipulated, "Price: Shall be fixed by the seller on or before December 15 for the first three months shipments beginning January 1. Seller shall give the buyer notice in writing on or before the 15th day of the third month thereafter of the price of the tons to be shipped the ensuing three months period, which price shall be the seller's market price then existing under this the seller's standard form of quarterly price fixing contract."

Refusal of the Federal appellate court to sustain a recovery of damages against the purchaser for its refusal to accept deliveries rested on this same principle of law, that the method for the determination of the price must be definite and certain.

Seller's Market Price

"We see nothing in this contract which takes from the seller the absolute right to fix the price in the future. Certainly the purchaser had no voice in fixing the price. Nor did any third person have any immediate influence in determining the price. True, the seller may, in acting, have been governed by a desire to hold future business or have been prompted by other laudable motives. But the seller could have arbitrarily changed the price each quarter and from such arbitrary fixation the purchaser had no appeal. Upon the ground of uncertainty and also for want of

REFERENCES

(1) Bethlehem Steel Co. v. Turner Construction Co., 141 N.E.2d 590 New York, March 8, 1957

(2) Du Bois Concrete Products Corp. v. Country Estates of Flower Hill, 156 N.Y.S.2d 309, New York, Sept. 14, 1956

(3) Lipman v. Arlington Seating Co., 192 Fed. 2d 93, Illinois, October 31, 1951

(4) Taller & Cooper v. Illuminating Electric Co., 172 Fed. 2d 625, Illinois, February 19, 1949

(5) Weston Paper Mfg. Co. v. Downing Box Co., 293 Fed. 725, Wisconsin, October 2, 1923

(6) Moore v. Shell Oil Co., 6 Pac. 2d 216, Oregon, December 15, 1931

(7) Buggs v. Ford Motor Co., 113 Fed. 2d 618, Wisconsin, June 28, 1940

(8) Memphis Furniture Mfg. Co. v. Wemyss Furniture Co., 2 Fed. 2d 428, Tennessee, November 7, 1924

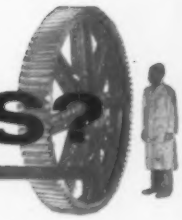
(9) United States v. Smith, 18 U. S. 153, page 159, February 25, 1820

(10) Moon Motor Car Co. v. Moon Motor Car Co., 29 Fed. 2d 3, New York, November 19, 1928

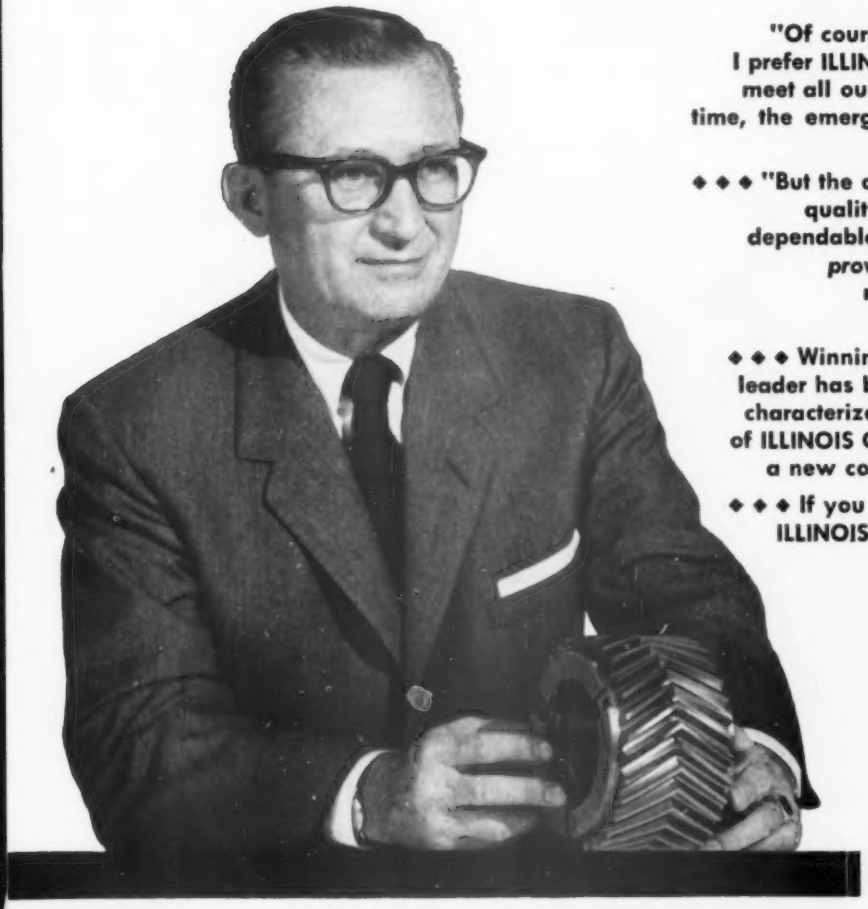
(11) Ames v. Quimby, 96 U. S. 324, Michigan, October, 1877.

For More Information Write No. 214 on Inquiry Card—Page 32→

WHY BUY ILLINOIS GEARS?



THE ANSWER IS QUALITY... EVERYTIME!



"Of course, there are many reasons why I prefer ILLINOIS GEARS. I like the way they meet all our specs, the way they deliver on time, the emergency service we get when we need it—to mention a few.

◆ ◆ ◆ "But the one thing I like most of all is the quality of ILLINOIS GEARS—enduring, dependable quality I can trust because it is *proven by performance* . . . one more reason why we feel they are our most economical buy."

◆ ◆ ◆ Winning this recognition as the quality leader has been rightfully earned because it characterizes every step in the manufacture of ILLINOIS GEARS—a creed that established a new concept of quality in gear making.

◆ ◆ ◆ If you are not now using or specifying ILLINOIS GEARS find out about the gears that are *made right with quality as the first consideration.*

Look for this mark ILL® *the symbol on finer gears*

Gears for Every Purpose ... one gear or 10,000 or more

ILLINOIS GEAR & MACHINE COMPANY

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consideration we conclude the agreement as drawn was unenforceable."[5]

In contrast with these instances held by the courts as characterized by "perhaps" and not by "certainly' is an agreement in which the prices although made susceptible to market changes, were established by standards held adequate by the Oregon Supreme Court.

Market Price Certain

It was stipulated in this contract by a dealer in that state with the Shell Oil Company, "The price of gasoline purchased by the dealer as hereinbefore provided shall be four cents less than the Shell Co. of California's full market price in North Powder, Oregon, which full market price is understood to be no cents higher than Shell Co. of California's posted full market price at its bulk depot at Baker, Oregon."

In its decision of an action brought by the dealer against the oil company in which it was claimed that the company had failed to perform its obligations, it was argued that the contract was unenforceable and invalid for the failure of the parties to fix definitely the price. This argument the court refused to follow.

"To constitute a sale," it was said, "the price need not be definitely fixed at the time the sale is effected if the agreement contains express or implied provisions by which it may be rendered certain. There could be no uncertainty as to the oil company's market price at North Powder. The contract expressly provides that the price to the distributor should be four cents per gallon less than that."[6]

Net List Price

On this decision as an authority was determined a later action against the Ford Motor Company in a Federal court in Wisconsin. In that instance the contract on which suit was brought provided, "Company will sell its products to dealer f.o.b. Detroit, Mich. at such net list price, or at such discount from published list prices as are from time to time fixed by the company."

Of the validity of this agreement and the provisions for ascertainment of the price it was held, "It is one which affords some support for the wisdom and the necessity for legislation which protects the weak against the strong party in situations like the instant one. Similar contracts have been before the courts on many occasions and there are numerous decisions which hold these contracts to be void for lack of mutuality. Such disagreements as seemingly exist in the decisions may be partly attributed to the differences in the terms of the agreements under attack.

"We are convinced that the agreement before us is not unilateral and is valid. The parties had been dealing with each other prior to execution of the last contract. They knew of the practices of each other. The dealer knew that automobiles were redesigned and new automobiles appeared yearly and as a result prices changed at least seasonally. The company's business was nation wide and its agents were many. It was to this known situation that the contract referred.

"The parties negotiated with a background of past dealings and mutual knowledge of the practices of the trade. 'The net list prices and discounts from published list prices' were well known to both parties. These net list prices and published list prices were the same to all dealers. They were not lacking in definiteness but provided a method whereby the prices could be definitely ascertained at any time."[7]

Followed here as authority in this decision in which the length of time the relationship of buyer and seller had continued was held a factor in determining the validity of the agreement for a subsequent fixing of the price, was an action in Tennessee. There it had been stipulated, "Due to the uncertainty of manufacturing this order is accepted subject to prices in effect on shipping date and our ability to ship."

Of this clause and the validity of the agreement which the purchaser in its efforts to escape its obligations, contended was void for uncertainty the Tennessee court said in its statement of this law, later to be followed in that Wisconsin decision, "The contract did not specifically state the price to be paid for the goods on delivery. To constitute a sale the price need not be definitely fixed at the time the sale is effected if the agreement contains express or implied provisions by which it may be rendered certain. Whether the price to be paid was the market price at the time of delivery or the price fixed by the seller, the data for determining the price were present and easily ascertainable."[8]

Charlie, for ten years your price at time of shipment has been OK. But this time it's too high. Take it back.
No go, Louie. You know how we arrived at that price.
THIS SIDE UP
FRAGILE

LENGTH OF TIME BUYER AND SELLER HAVE DONE BUSINESS IS A FACTOR IN DETERMINING VALIDITY OF ESCALATOR CLAUSES

In the interpretation of escalation clauses providing for the future adjustment of the price to be paid, the essence lies in a statement made by Justice Story of the United States Supreme Court in the early years of the last century. "That is certain which is by necessary reference made certain."[9]

The price to be paid under such

(*Please turn to page* 186)

Bronze, Iron, Steel and alloy Valves

Fig. 375—Bronze Gate Valve for 200 pounds W.S.P. Union bonnet, inside screw rising stem.

Fig. 2107—Stainless Steel "Y" Valve for 150 W.P. Plug type disc. Face to face and end flange dimensions conform to latest standards.

Fig. 560—200-Pound Bronze Regrinding Swing Check Valve. "Y" type, ¼" to 1"; regular type (above), 1¼" to 3".

Fig. 2608—Bronze "WS" Full Flow Globe Valve for 200 pounds W.P. Fuller flow, less turbulence and pressure drop.

Fig. 1793—Iron Body Bronze Mounted Gate Valve for 125 pounds W.S.P. Outside screw rising stem and yoke.

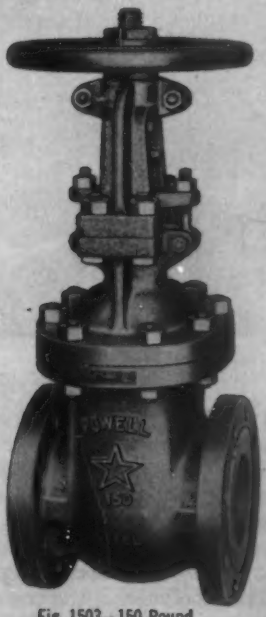


Fig. 1503—150-Pound Steel O.S. & Y. Gate Valve.

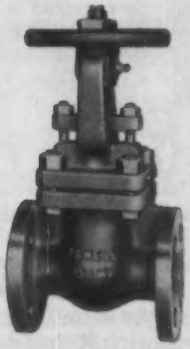


Fig. 2491—Stainless Steel Gate Valve for 150 W.P. Outside screw rising stem and yoke. Interchangeable solid or split wedge discs.

POWELL...

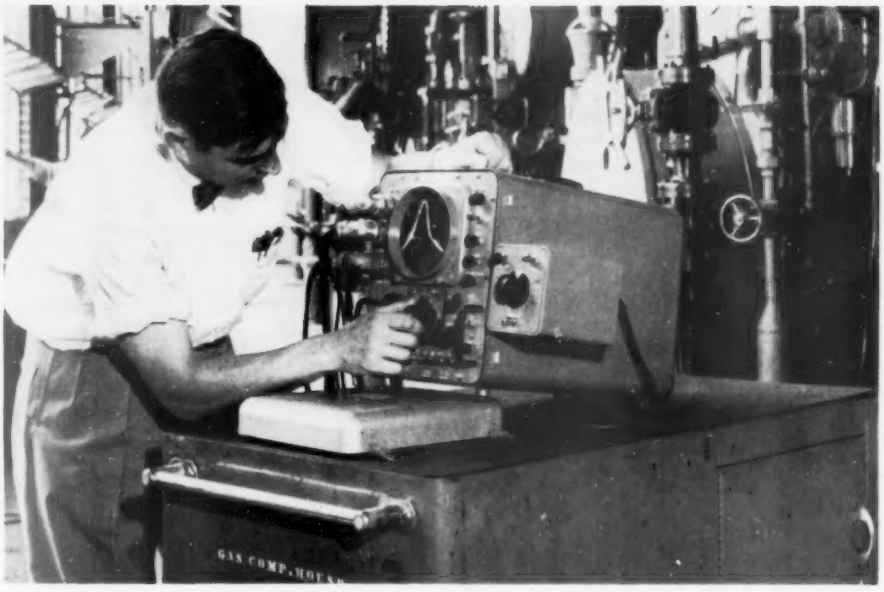
world's largest family of valves

FOR EVERY FLOW CONTROL PROBLEM Powell offers more kinds or types of valves, available in the largest variety of metals and alloys, to handle every flow control requirement. Your local valve distributor will be glad to tell you all about them. Or write to us for the full facts.

THE WM. POWELL COMPANY • *Dependable Valves Since 1846* • **Cincinnati 22, Ohio**

For More Information Write No. 215 on Inquiry Card—Page 32

Industrial Engine Analyzer Cuts Maintenance Costs



Engineer E. A. Sammis runs through a complete "physical" on a large natural gas engine using Sperry Gyroscope Company's new industrial engine analyzer. The cathode ray screen he's looking at gives him a complete picture of the engine's operation, enabling him to pinpoint malfunctions and potential trouble spots. He makes his diagnosis quickly: all he has to do is make five connections to the engine; no shutdown is required to operate the 36-pound portable unit.

AN INDUSTRIAL engine analyzer is now available that enables operators and maintenance men to take a complete look at the inner functioning of a reciprocating engine without having to shut the engine down.

The analyzer detects and pinpoints malfunctions before they develop into serious problems, thereby reducing maintenance costs. For example, it will detect within one degree of crankshaft position any ignition mistiming.

The 36-pound unit picks up and analyzes ignition, vibration and pressure data. This information is transmitted in electronic form through wires to a control unit, where it is translated into pictorial patterns on a five-inch cathode ray screen. Such information was formerly obtained from as many as three electronic instruments.

Simplicity of operation and easy interpretation of visual electronic patterns portrayed on the screen make the analyzer a line operator's tool, as well as an engineering aid. A qualified operator can use the analyzer competently after a few hours' instruction.

The engine analyzer operates in this manner:

Four connections are made to the engine: one to the flywheel, one to the ignition primary circuit, and two to a power cylinder. Timing the analyzer to the engine is accomplished by a fifth pickup located near a mark on the flywheel. All the connections may be made without stopping the engine.

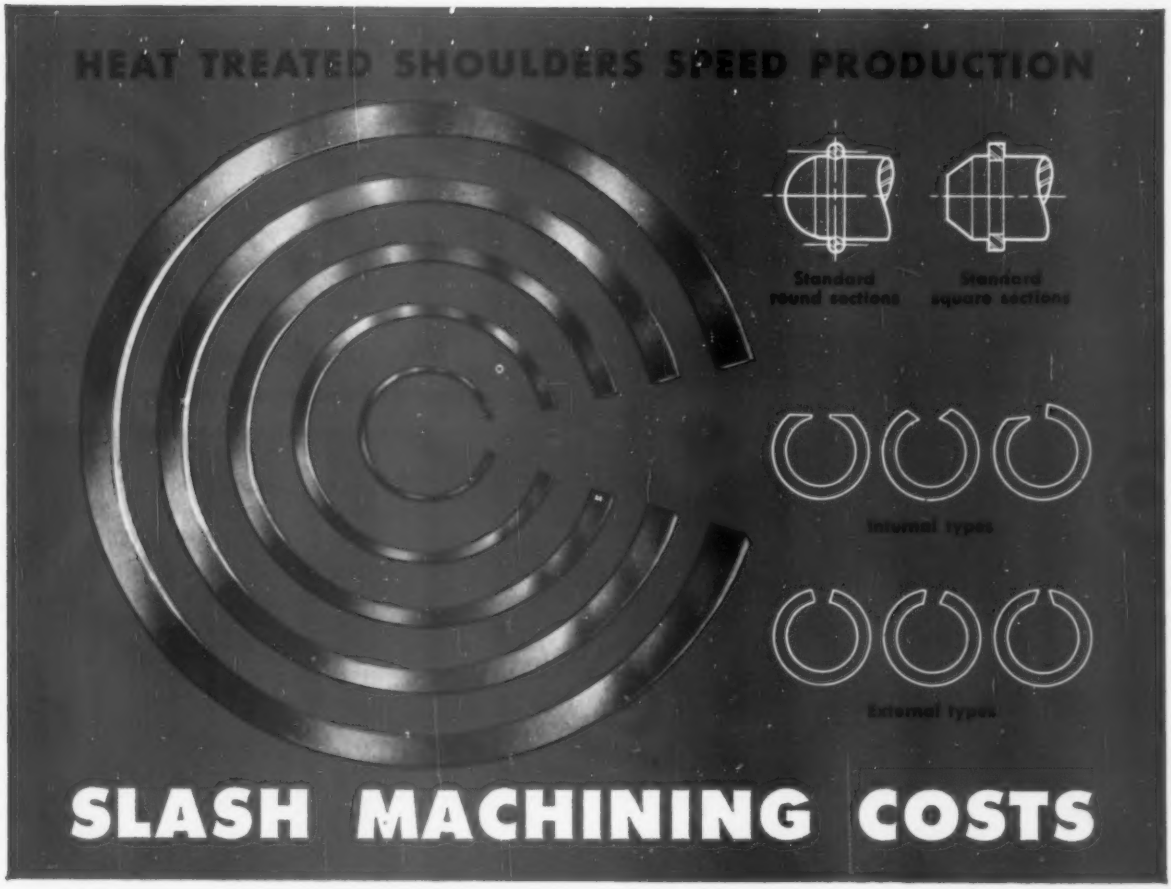
A sweep is driven across the cathode ray tube in time with the engine. The resulting trace line shown on the screen is responsive in the vertical direction to signals from ignition, cylinder vibration and cylinder pressure. Simple manipulation of the controls presents a precise and complete picture of the engine's operation.

The 36-pound portable unit, made by the Sperry Gyroscope Co., Great Neck, New York, is expected to have widespread use throughout the natural gas, chemical, petrochemical and other industries where large reciprocating engines are used. Round-the-clock operation of as many as twelve such engines is common at a single natural gas pipline pumping station.

Aviation versions of the equipment are used with all types of airline, executive and military aircraft. Approximately 7,000 airborne and portable units have been delivered to the aviation industry.

Early tests of a prototype analyzer proved its worth by saving approximately $4,800 a month for an industrial plant using 80 natural gas engines, Sperry engineers said.

Write No. 30 on Inquiry Card—Page 32



EATON-RELIANCE Snap Rings

Machining costs CAN be reduced without reducing product quality. This is specifically true where Eaton-Reliance Snap Rings are used instead of machined shoulders on shafts and in counterbores. Design and industrial engineers save production man hours as well as valuable material. How? Eaton-Reliance Snap Rings allow shafts to be ordered to size rather than oversize. The metal taken from the small groove required for the snap ring is negligible compared to the amount wasted machining an entire shaft. The time it takes to machine a groove is only a fraction of that needed to fully machine a shaft either externally or internally.

These time and material savings add up to dollars.

Eaton-Reliance Snap Rings are being used successfully in industry throughout the country. They are designed for long life, made of steel cold drawn in our own plant, quality controlled from start to finish. You can rely on Reliance Snap Rings.

Send for your free copy of Engineering Bulletin No. 55 or write for the name of the nearest Eaton-Reliance representative.

EATON — *RELIANCE DIVISION*
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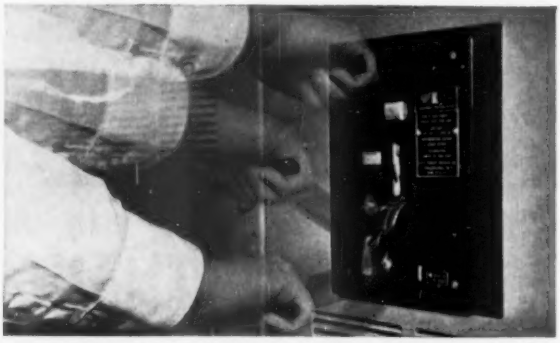
PRODUCTS: Sodium Cooled, Poppet, and Free Valves • Tappets • Hydraulic Valve Lifters • Valve Seat Inserts • Jet Engine Parts • Rotor Pumps • Motor Truck Axles • Permanent Mold Gray Iron Castings • Heater-Defroster Units • Snap Rings Springtites • Spring Washers • Cold Drawn Steel • Stampings • Leaf and Coil Springs • Dynamatic Drives, Brakes, Dynamometers

For More Information Write No. 216 on Inquiry Card—Page 32

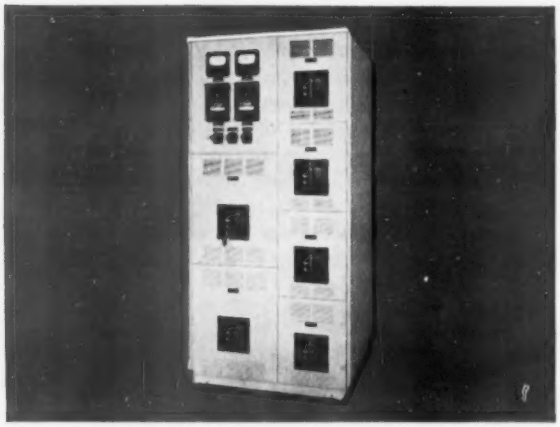
I-T-E makes sweeping design advances in new low voltage power circuit breakers, switchgear

I-T-E's new K-Line offers better performance, greatly simplified operation and servicing, and standardization in construction and assembly

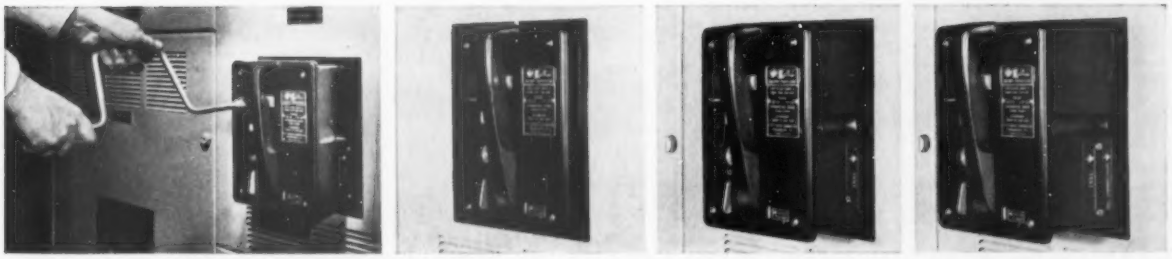
Now we offer a complete new design of equipment for the switching, control and protection of motor, generator, transformer and feeder circuits, as well as other large electrically powered facilities—the most sweeping design advance in 13 years. Among the major innovations in the new design are the following.



First quick-make manually charged stored energy closing mechanism. First 90% of pulldown handle travel charges spring mechanism, last 10% releases stored energy, automatically closes contacts. No teasing of contacts is possible.

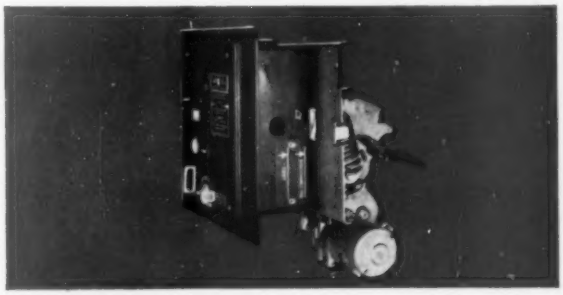


4-high stacking of 600 amp frame size circuit breakers in 90-in.-high enclosures. The new circuit breakers are as much as one-third smaller and 55% lighter than comparable units. The new switchgear is the smallest ever designed.

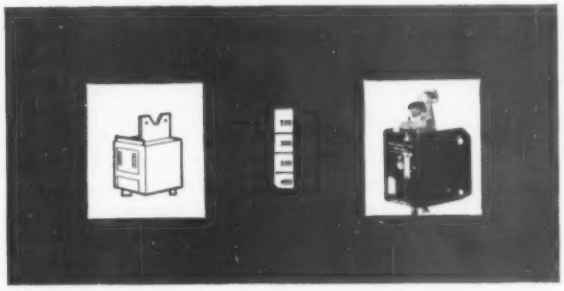


First closed-door drawout of circuit breakers. This permits racking of circuit breaker into connected, test and disconnected positions without opening the door of the circuit breaker compartment. Drawout arrangement keeps circuit breakers clean, aisles uncluttered, promotes personnel safety. Breaker must be opened before shutter can be lifted to insert drawout racking crank. Breaker cannot be closed while shutter is lifted.

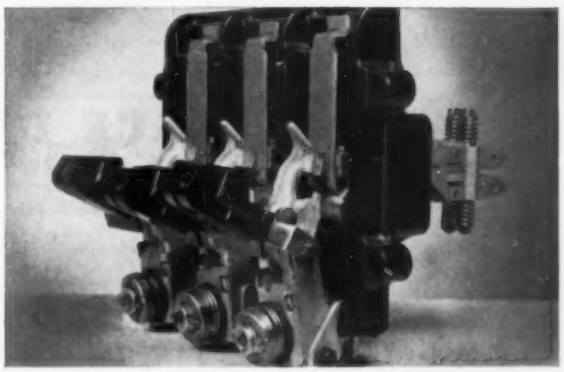
Greatly increased accessibility to component parts for operation and servicing. For example, trips on electrically and manually operated breakers are out in the open and can be easily adjusted. Trips also can be changed quickly. One-piece molding holds trip units, which are changed from the rear and in a fraction of the time formerly required.



Stored energy electrical closure that materially cuts control circuit requirements. The motor-driven stored energy system requires only 10 amp from a simple power source, compared to as much as 160 by comparable solenoids. Quick-make manual closure operates on same principle. First 90% of pull-down handle travel charges a spring mechanism. Last 10% releases the stored energy and closes the contacts. No teasing.



Expanded trip flexibility meets last-minute load changes in many instances with the existing trip unit.



Subassembly circuit breaker construction permits easier, faster replacement of parts. Six major subassemblies replace 130 separate parts in previous models. A part replacement formerly requiring an all-day overhaul of the circuit breaker may mean only removing and replacing a unit subassembly—a matter of minutes.

Bulletin 6004C tells the complete story of this advanced design switchgear. Ask your local I-T-E representative for a copy today. Or write I-T-E CIRCUIT BREAKER COMPANY, Switchgear Division, 19th & Hamilton Sts., Philadelphia 30, Pa.

I-T-E CIRCUIT BREAKER COMPANY

19TH AND HAMILTON STREETS, PHILADELPHIA 30, PENNSYLVANIA

ACE

GROUND-FROM-THE-SOLID

DRILLS

Right you are when you specify Ace Ground-from-the-Solid Drills! Chances are you'll find the expanded Ace line includes standard stock drills that are tailor-made for your job. Long ones, short ones. Big ones, small ones. Drills made of top quality, uniformly hardened high speed steel. Carbide tipped and solid carbide drills, too. What's more, you'll find that every Ace drill is *pointed right* for you . . . finished with highly polished flutes and stronger, keener cutting edges that resist wear and breakage, stay on the job longer. So be right, buy right . . . specify "Ace".

Call your local distributor or write direct today for the latest Ace Drill Catalog and current Net Price Schedule.

ACE DRILL

ADRIAN, MICHIGAN

Originators of Ground-from-the-Solid High Speed Steel Drills

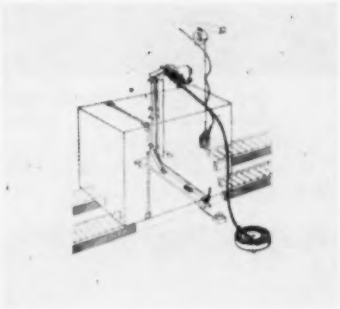
P.S. to P.A's - Next time you need drills in a hurry, call your nearby Ace Distributor. He carries the entire line in stock to give you prompt delivery service. And you'll find they're the finest drills that money can buy... competitively priced, too!

Taper Length Drills	Stub Length Drills	"Hi-Brinell" Drills	Carbide Tipped Drills
12" - 18" Longboy Drills	Heavy Duty Drills	Solid Carbide Drills	Step & Subland Drills
Hardened H.S.S. Blanks	Slow Spiral Drills	Taper Shank Drills	"L" & "M" Plastic Drills
General Purpose Drills	Fast Spiral Drills	Chucking Reamers	Drill Length Reamers

For More Information Write No. 218 on Inquiry Card—Page 32

Products

Power Feeder Fast Straps Large Packages



Designed to reduce operator fatigue and permit large packages or skids to be strapped by one man, a power strap feeder, made by Signode Steel Strapping Co., 2600 N. Western Ave., Chicago 47, Ill., feeds strapping at the rate of 240 fpm. When used with power operated strapping tools, it applies up to 200 straps per hour. It thus provides high strapping speeds that were formerly possible only with more expensive automatic power strapping machines. It can be adjusted to handle any size strapping from 5/16" x .012" to ¾" x .035".

Write No. 31 on Inquiry Card—Page 32

Interfloor Conveyor Speeds Handling 66%

A completely automatic, heavy duty interfloor conveyor system has been developed by Gifford-Wood Co., Hudson, N.Y., to handle the problem of transferring large amounts of incoming materials from one level of a plant to another. The system consists of feed conveyor, vertical conveyor and discharge conveyor, with interlocking safety switches at each transfer step. During normal operations, key to the system is a conveyor-high beam at the discharge end. When a bundle is removed from the conveyor, the electric eye beam makes contact and starts the entire system in motion, causing the various steps of feeding, vertical conveying and discharging to follow automatically.

Write No. 32 on Inquiry Card—Page 32
For More Information Write No. 219 on Inquiry Card—Page 32→

TOOL LIFE INCREASED 400%

CLEVELAND Carbide Tipped Adjustable Reamer sets new high record!

The specifications on this job call for reaming a 4½" hole to a tolerance of .001" and a surface finish of less than 50 R.M.S. (micro-finish). CLEVELAND Carbide Tipped Adjustable Reamers are meeting these requirements day after day... month after month... *and reaming five times as many holes per grind as the conventional high speed reamers formerly used.*

◈ Whenever *you* have a difficult reaming problem, a CLEVELAND Service Representative can help you. Contact our nearest Stockroom, or...

TELEPHONE YOUR INDUSTRIAL SUPPLY DISTRIBUTOR

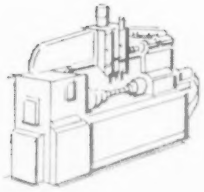
Request your copy of this descriptive booklet on CLEVELAND Carbide Tipped and Solid Carbide Cutting Tools

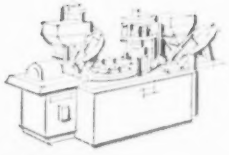
THE CLEVELAND TWIST DRILL CO.

1242 East 49th Street • Cleveland 14, Ohio

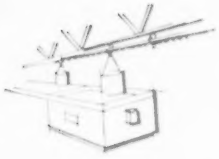
Stockrooms: New York 7 • Detroit 2 • Chicago 6 • Dallas 2 • San Francisco 5 • Los Angeles 58

E. P. Barrus, Ltd., London W. 3, England

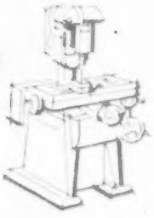


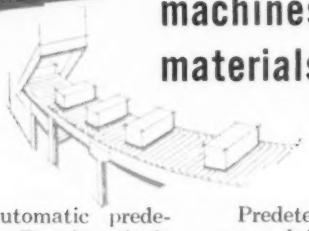


NEW ELECTRIC PREDETERMINING COUNTER...



for remote operation of machines, processes, materials handling





This Veeder-Root automatic predetermining control device offers, in a single unit, new convenience and flexibility in the solution of machine and process control and materials handling problems. Five readily set control knobs provide great ease in establishing any of the 100,000 possible control points. The electromagnetic counting unit permits the use of a wide variety of remote actuators, switches, contactors, electric eyes, or other sensing units. This provision, in conjunction with the several possible electrical control circuits, allows completely remote operation of the controlled equipment.

Predetermining control units can be grouped in a single central location for convenient setting of the predetermined quantities and visual monitoring of the accumulated counts. Additional ease of operation is afforded by the two-second duration electric reset which allows completely automatic recycling, automatic reset in preparation for the following cycle, or push button reset whenever desired. For full details, write:

VEEDER-ROOT INC.
HARTFORD 2, CONNECTICUT
Hartford, Conn. • Greenville, S.C. • Altoona, Pa. • Chicago
New York • Los Angeles • San Francisco • Montreal
Offices and Agents in Principal Cities

Everyone can count on

VEEDER-ROOT

E. P. Barrus, Ltd., London W. 3, England

NEW!

SIMONDS HARD RIM SAW

- **Longer Cutting Life**
- **Maximum Safety**
- **Minimum Kerf**

Here's Simonds *newest* — a solid saw that offers longer cutting life and greater safety similar to Simonds Inserted Tooth or Segmental Saws. Specifically, it provides increased cutting life between sharpenings . . . decreased breakage at high speeds . . . and less kerf (as compared to non-solid saws). The saw *rim* is made extremely hard for tremendous resistance to abrasion and wear — the saw *body* is made just hard enough for true cutting of non-ferrous metals and plastics on all types of machines.

Simonds "Hard Rims" will produce a better finish because the solid tooth design cuts truer . . . you can safely run 'em at higher speeds because they will not shatter. And they can repeatedly be resharpened on standard saw grinding equipment. When you get yourself a Simonds "Hard Rim" (8" to 18" dia.), you've got yourself a SAW, brother!

Section of saw above shows grinding temper portion (dark area) extending from rim to full depth of expansion slots . . . and tough temper body portion (light area) which provides greater resistance to cracking and added safety at high speeds.

For Fast Service from Complete Stocks
Call your
SIMONDS Industrial Supply DISTRIBUTOR

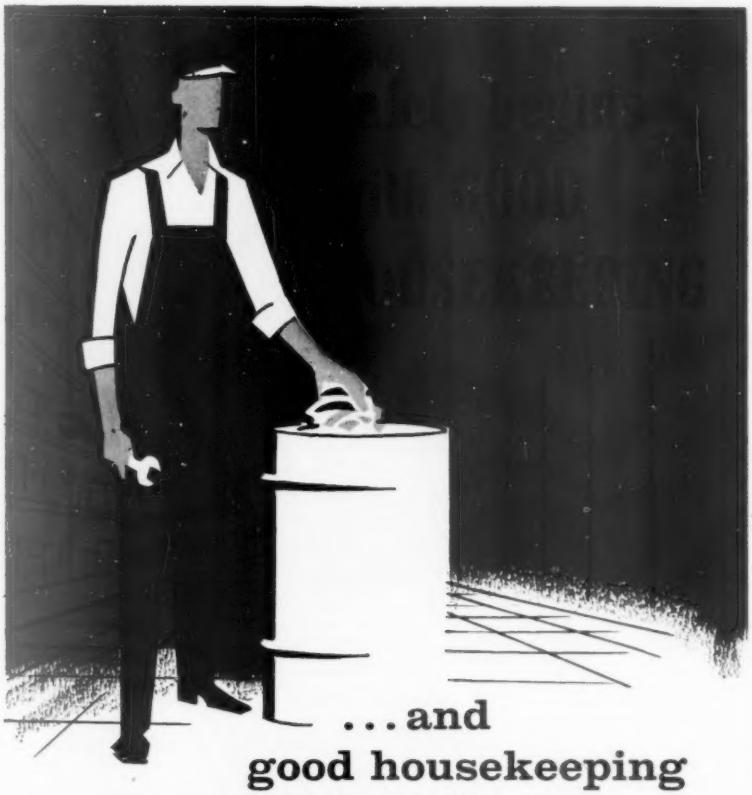
SIMONDS SAW AND STEEL CO.
FITCHBURG, MASS.

Factory Branches in Boston, Chicago, Shreveport, La., San Francisco and Portland, Oregon
Canadian Factory in Montreal, Que., Simonds Divisions: Simonds Steel Mill, Lockport, N. Y. Heller Tool Co., Newcomerstown, Ohio, Simonds Abrasive Co., Phila., Pa., and Arvida, Que., Canada

Other High Quality SIMONDS Metalworking Products

HAND HACK SAW BLADES | POWER HACK SAW BLADES | FILES | BAND SAWS | ROTARY SHEAR KNIVES & SQUARING SHEARS | FLAT GROUND DIE STEEL

For More Information Write No. 220 on Inquiry Card—Page 32



. . . and good housekeeping begins with Stonehouse Signs!

Nothing fosters accidents, and inefficiency, like dirt and disorder. Inevitably, production losses, mistakes, accidents occur where industrial housekeeping is poor.

Plants throughout the country enlist employee aid in this important undertaking by the use of INDUSTRIAL GOOD HOUSEKEEPING SIGNS from STONEHOUSE. Constantly reminding, these signs work efficiently, endlessly, at lowest possible cost. Each sign is made of enduring, tested materials, and manufactured in accordance with American Standard specifications.

✻ *Write today for our free, full-color, 64 page catalog of thousands of ready-to-ship safety signs, plus information about custom-printed signs to meet your special needs.*

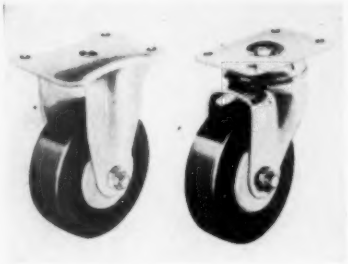
"Signs since 1863"

Stonehouse SIGNS

STONEHOUSE SIGNS, INC., Stonehouse Building, 9th and Larimer, Denver 4, Colorado
For More Information Write No. 221 on Inquiry Card—Page 32

Products

Light Duty Casters



The Rapid-Standard Co., Inc., Grand Rapids, Mich., is now marketing an improved design caster in the 150-275 pound capacity range. A heavy plating gives it a bright silvery finish, desirable in applications where an attractive appearance is important, such as in institutions or food handling establishments. Construction of the caster includes double hardened ball raceways, heavy cold-formed steel yoke and top plate, and a permanent type squeezed rivet king pin. Choice of bearings is available, including plain, oilite, or Hyatt type roller bearings.

Write No. 33 on Inquiry Card—Page 32

Ultrasonic Cleaner Removes Soils Quickly

An ultrasonic cleaner with overall dimensions of 22" x 19" x 37", is in production by Branson Ultrasonic Corp., 40 Brown House Rd., Stamford, Conn. It incorporates a heater, temperature control, filtration and recirculation system, in addition to the ultrasonic generating equipment. The transducers, mounted to the bottom of the 5 gallon tank have a rated input of 250 r-f watt, which they convert

(*Please turn to page 126*)

For More Information Write No. 220 on Inquiry Card—Page 32

Now! A Complete Line of Self-Locking Microsize UNBRAKO Socket Cap and Set Screws

Nos. 0, 1, 2 and 3 in alloy steel and stainless steel are available with the Nylok* feature

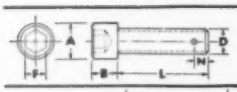
You effect major economies in time and money when you design and assemble small devices with self-locking microsize UNBRAKO socket screws. These close tolerance screws won't work loose. They simplify standardization of small devices where maximum reduction of weight is required without sacrifice of strength. They eliminate the necessity of designing costly special screws to fasten tiny parts in compact assemblies and they prevent the waste of production time while waiting for delivery of special screws.

In addition to having the overall advantages of microsize UNBRAKO socket screws, these screws can be used in holes tapped in soft or die cast materials without stripping threads and ruining expensive work. Also the set screws can be used with hardened shafts, since they lock against the threads of the tapped hole.

All UNBRAKO socket screws can be supplied with the self-locking Nylok feature. The UNBRAKO with Nylok is a single self-locking unit. No auxiliary locking devices are needed. Seated or not, the screw locks positively wherever wrenching stops, won't work loose—because the tough resilient nylon pellet forces mating threads together.

Ask your authorized industrial distributor for details today. He carries complete stocks of self-locking UNBRAKO socket screws (caps and sets from #0 through 1 in., button heads #4 through ⅝ in., flat heads from #4 through ¾ in.). Or write us for literature and samples. Unbrako Socket Screw Division, STANDARD PRESSED STEEL Co., Jenkintown 31, Pa.

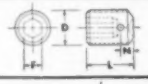
*T.M. Reg. U.S. Pat. Off., The Nylok Corporation



HEAT-TREATED ALLOY STEEL
Self-Locking Microsize UNBRAKO
Socket Cap Screws
Class 3A Threads

Screw Size		Threads per in. NC	Threads per in. NF	L Over-all Length	N Pellet Location NC	N Pellet Location NF	Torque Max. prev. on	Torque 1st off stat. min.	Torque 5th off stat. min.
#0	A .104	—	80	1/8	—	.047	5.5	14.0★	7.0★
	B .060	—	80	3/16	—	.047	5.5	14.0★	7.0★
	D .060	—	80	1/4	—	.047	5.5	14.0★	7.0★
	F .050	—	80	3/8	—	.047	5.5	14.0★	7.0★
#1	A .118	—	72	1/8	—	.047	11.0	28.0★	14.0★
	B .073	—	72	3/16	—	.047	11.0	28.0★	14.0★
	D .073	—	72	1/4	—	.047	11.0	28.0★	14.0★
	F .050	—	72	3/8	—	.047	11.0	28.0★	14.0★
#2	A .140	56	—	3/16	.063	—	24.0	3.0	1.5
	B .086	56	—	1/4	.063	—	24.0	3.0	1.5
	D .086	56	—	3/8	.063	—	24.0	3.0	1.5
	F 1/8	56	—	1/2	.063	—	24.0	3.0	1.5
#3	A .161	48	—	3/16	.063	—	40.0	6.5	3.0
	B .099	48	—	1/4	.063	—	40.0	6.5	3.0
	D .099	48	—	3/8	.063	—	40.0	6.5	3.0
	F 5/64	48	—	1/2	.063	—	40.0	6.5	3.0

*Measured in in.-gm. (those not marked with a star are measured in in.-oz.)



HEAT-TREATED ALLOY STEEL
Self-Locking Microsize UNBRAKO
Socket Set Screws
Class 3A Threads

Screw Size		Threads per in. NC	Threads per in. NF	L Over-all Length	N Pellet Location NC	N Pellet Location NF	Torque Max. prev. on	Torque 1st off stat. min.	Torque 5th off stat. min.
#0	D .060 F .028	—	80	3/32	—	.047	5.5	14.0★	7.0★
		—	80	1/8	—	.047	5.5	14.0★	7.0★
		—	80	5/32	—	.047	5.5	14.0★	7.0★
		—	80	3/16	—	.047	5.5	14.0★	7.0★
		—	80	1/4	—	.047	5.5	14.0★	7.0★
#1	D .073 F .035	—	72	1/8	—	.062	11.0	28.0★	14.0★
		—	72	5/32	—	.062	11.0	28.0★	14.0★
		—	72	3/16	—	.062	11.0	28.0★	14.0★
		—	72	1/4	—	.062	11.0	28.0★	14.0★
#2	D .086 F .035	56	—	1/8	.062	—	24.0	3.0	1.5
		56	—	5/32	.062	—	24.0	3.0	1.5
		56	—	3/16	.062	—	24.0	3.0	1.5
		56	—	1/4	.062	—	24.0	3.0	1.5
#3	D .099 F .050	48	—	5/32	.093	—	40.0	6.5	3.0
		48	—	3/16	.093	—	40.0	6.5	3.0
		48	—	1/4	.093	—	40.0	6.5	3.0

*Measured in in.-gm. (those not marked with a star are measured in in.-oz.)

Self-locking microsize UNBRAKO socket cap and set screws are available in sizes #0 through #3, in heat treated alloy steel (plated or unplated) and stainless steel, at your authorized industrial distributor. He also carries a complete stock of other self-locking UNBRAKO socket screws.

We also manufacture precision titanium fasteners. Write for free booklet.

SPS **Jenkintown • Pennsylvania**

Standard Pressed Steel Co. • The Cleveland Cap Screw Co. • Columbia Steel Equipment Co., Inc. • Cooper Precision Products • Standco Canada Ltd. Unbrako Socket Screw Co., Ltd.

For More Information Write No. 222 on Inquiry Card—Page 32

SIKORSKY

For More Information Write No. 222 on Inquiry Card—Page 32

it takes
quality
...to make
quality

...so SIKORSKY uses MORSE *Electrolized* tools

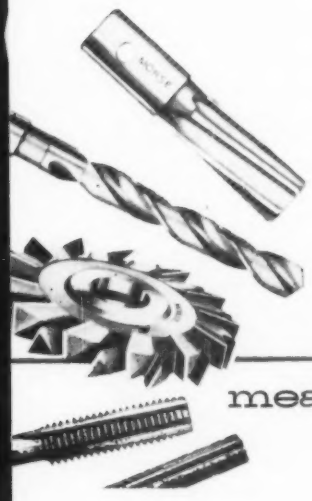
Dependability, increased payload, and improved performance . . . these are the outstanding features of the new Sikorsky S-58 commercial helicopter for transport service.

And you can say the same things about Morse *Electrolized* Tools, used in construction of the S-58. *Dependability* on the toughest jobs. *Increased payload* . . . because Morse *Electrolized* Tools last up to 100% longer. *Improved performance* . . . because every hole is smoothly and accurately drilled.

Prove it to yourself, on your own work. Call "the man with the most" . . . your Morse-Franchised Distributor.

MORSE TWIST DRILL & MACHINE CO., New Bedford, Mass.

A Division of VAN NORMAN INDUSTRIES, INC.
Warehouses in New York, Chicago, Detroit, Dallas, San Francisco



MORSE

means "THE MOST" in Cutting Tools

For More Information Write No. 223 on Inquiry Card—Page 32

WE MOLD AND FABRICATE
RUBBER AND SYNTHETICS
WITH IMAGINATION

Difficult . . . Intricate. These perfectly executed **BELLOWS**

represent the care and skill of master craftsmen . . . years of experience and know-how. Made in many sizes . . . many shapes . . . bellows such as these are key links in thousands of different types of equipment . . . perform important functions. For the important functioning of your product or equipment . . . for that key link . . . whether it be a simple channel, bumper, or weather strip; seal, washer or grommet; diaphragm or connector . . . we can help solve your problems in designing, molding or fabricating mechanical goods of rubber and synthetics.

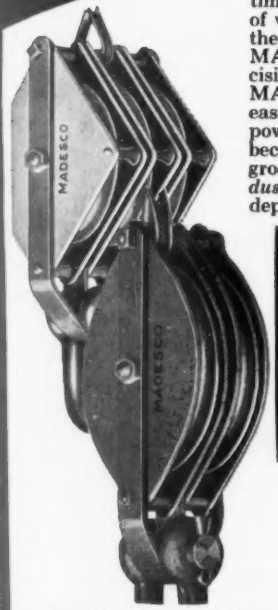
Write, wire, phone for more complete information TODAY. If you have prints, ask for quotation.

MECHANICAL RUBBER PRODUCTS CO.
America's Newest and Most Modern Rubber Works

Doris Drive • Warwick, New York • WArwick 55-2271
Direct N. Y. C. Phone: REctor 2-9652 Representatives in Leading Cities
For More Information Write No. 224 on Inquiry Card—Page 32

These blocks save their cost... in terms of extra SERVICE

Evaluate MADESCO blocks in terms of their time-saving lifting performance . . . in terms of versatility—or added safety and you'll agree they'll save their cost time and time again; for MADESCO blocks are safety engineered, precision-built and *conservatively* load rated. With MADESCO blocks your loads travel smoothly, easily, quickly to save you man-hours and power costs; you save too, on rope replacements because MADESCO sheaves are precision-grooved to minimize friction. *Consult your industrial distributor* or write to our engineering department for recommendations.



MADESCO BLOCKS

MADESCO TACKLE BLOCK CO.
MAIN OFFICE & PLANT, EASTON, PA.

HAE-MA 266-457

For More Information Write No. 225 on Inquiry Card—Page 32

Products

(*Continued from page* 122)

into mechanical vibrations at 38 kc. This high-speed agitation provides a gentle but thorough scrubbing action which removes even insoluble soils in minutes—sometimes in seconds.

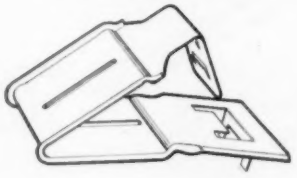
Write No. 34 on Inquiry Card—Page 32

High Frequency Vibration Exciter

The MB Mfg. Co., Div., Textron Inc., New Haven, Conn., has just put on the market its model C1-OVB vibration exciter that provides a force output as high as 1750 lb and has a frequency range of 5 to 5000 cps. It is claimed to be the highest-frequency electrodynamic vibration exciter in its force range. It is capable of operating continuously at rated force under severe environmental-chamber conditions, because of its efficient circulating-liquid cooling system. Force levels of 1050 rms and 3150 peak are obtainable in noise testing with a 15-2000 cps bandwidth.

Write No. 35 on Inquiry Card—Page 32

Speed Clip Provides Fast Assembly



Tinnerman Products, Inc., Cleveland, Ohio, has placed on the market a speed clip, designed to

(*Please turn to page* 128)

All 4 offer more light—save more money because Sylvania puts the reflector inside

Regardless of your lighting requirements —there's a Sylvania reflector lamp that can help reduce your lighting costs.

Sylvania reflector lamps give you more usable light without increasing power costs. You eliminate frequent, costly reflector and fixture cleaning expense. You get a higher degree of efficiency because light-dimming dirt, dust and grime can't affect the sealed-in reflector.

Sylvania reflector lamps are available in all 3 major lamp types:

Mercury Vapor (KS-HI) — a highly efficient 400 w. Silver-White lamp that combines the advantages of an internal reflector lamp with the economies of mercury vapor lighting. Its 23,000 lumens represent an important increase of over 20% in light output compared to other types of mercury vapor lamps of the same wattage.

Fluorescent—You get up to 60% more directed, usable light with Sylvania's Reflector Fluorescent Lamp. Available in single-pin and bi-pin types, they are made in a broad range of colors and sizes. They are particularly suited for industrial lighting, for bare-lamp strip lighting, and directed light in store windows, coves, valances, etc.

Incandescent — Sylvania Incandescent Reflector and Projector Lamps are available in "spot" and "flood" types. "Spots" concentrate a beam of high intensity, while "floods" give a wider, more diffused beam. Reflector lamps are suitable for high-bay industrial lighting, and close visual assembly work, parking areas, etc. Projector lamps are better for area floodlighting and general outdoor applications, or for interior industrial auxiliary lighting and many commercial applications.

Let your Sylvania Supplier demonstrate the dollars-and-cents advantages of high-efficiency reflector lamp lighting. Call him today, or write for information to:

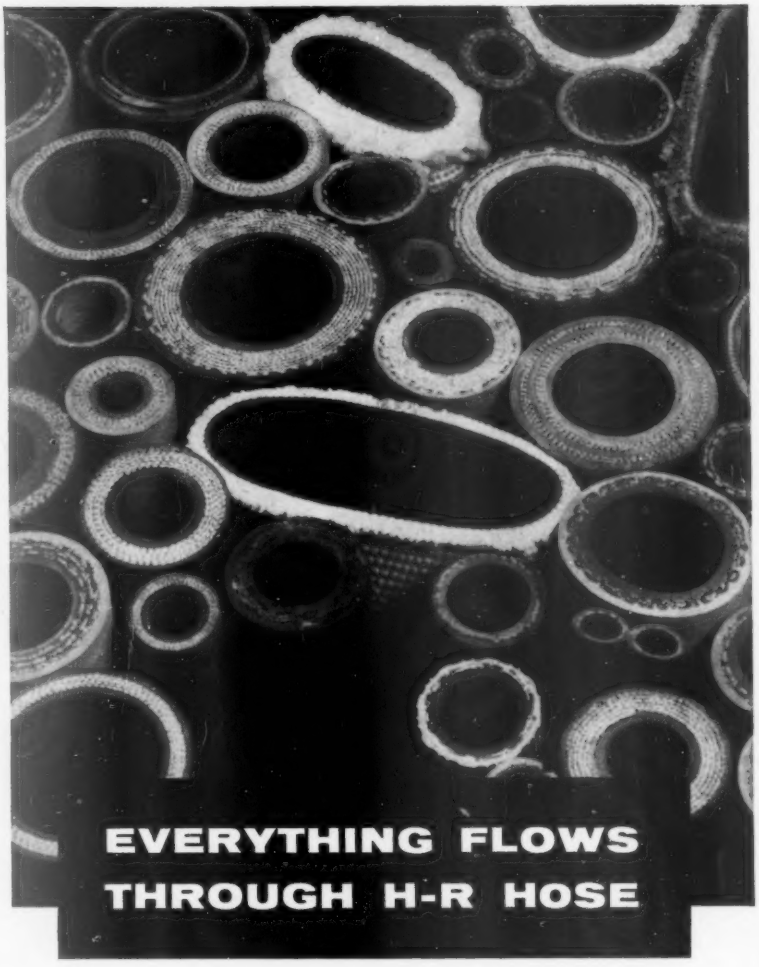
SYLVANIA ELECTRIC PRODUCTS INC.
Lighting Division, Dept. 8L-4501
60 Boston Street, Salem, Mass.
In Canada: Sylvania Electric (Canada) Ltd.
Shell Tower Building, Montreal

SYLVANIA

. . . the fastest growing name in sight!

LIGHTING • RADIO • ELECTRONICS • TELEVISION • ATOMIC ENERGY

For More Information Write No. 226 on Inquiry Card—Page 32



Well, almost everything does. Dirt, dust, alcohol, acid, fruit juice, compressed air, gasoline, agricultural sprays, molten sulphur, steam, mud, insulation materials, oil, foam, sand, oxygen, acetylene, and liquid propane are only some of the products for which H-R hose has been in service for years. In nation-wide stock for immediate delivery is H-R hose specially engineered by Hewitt-Robins to suit practically every job requiring top-quality, long life hose.

Whether you require abrasion resistance, acid resistance, short lengths or long lengths, wide diameters or narrow, pressure performance, or any of a variety of carcasses or covers, Hewitt-Robins can supply you with a tough wearing hose certain to give long, reliable performance. To order the type and size best suited to your requirements, call your nearest H-R representative, or Hewitt-Robins, Stamford, Connecticut.

HR HEWITT-ROBINS

CONVEYOR BELTING AND IDLERS . . . POWER TRANSMISSION DRIVES
INDUSTRIAL HOSE . . . VIBRATING CONVEYORS, SCREENS & SHAKEOUTS

For More Information Write No. 227 on Inquiry Card—Page 32

Products

(*Continued from page 126*)

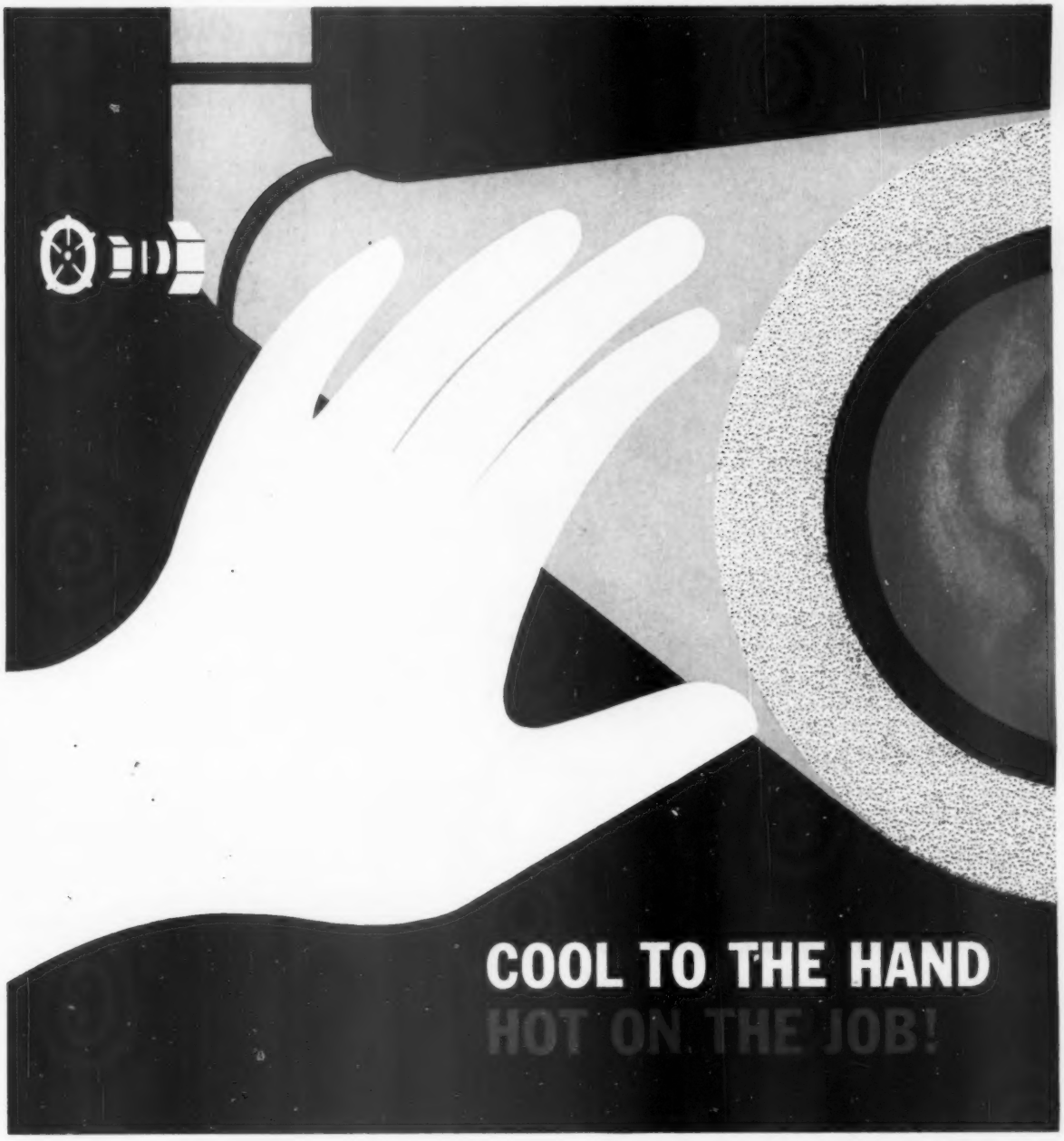
retain any of the popular single or multiple wire cord sizes in use on appliances and other products. Incorporating two locking steps, the clip is merely slipped over a wire and pre-latched or compressed to the first locking position. Locking tabs on the underside of the clip locate and center the latching leg over the hole in the panel. On compression to the second locking position, the latching leg is forced rearward to catch the underside of the panel, thus securing the wire in the clip and the clip to the panel.

Write No. 36 on Inquiry Card—Page 32

Synthetic Garments Withstand Corrosive Fumes, Liquids

Synthetic garments, made either of Dynel or Orlon, are now available to give up to ten times the service of ordinary cotton clothing in corrosive environments. The clothing is unaffected by acids, alkalis and most organic chemicals in common industrial use. In addition, that made from Dynel won't support combustion. The garments are washable, non-shrinking and non-absorbent. They may be easily decontaminated. Possessing exceptional abrasion resistance, they may be subjected to repeated laundering without showing wear. Milburn Co., 3246 E. Woodbridge, Detroit 7, Mich., manufactures them.

Write No. 37 on Inquiry Card—Page 32



K&M HIGH-PRESSURE INSULATIONS

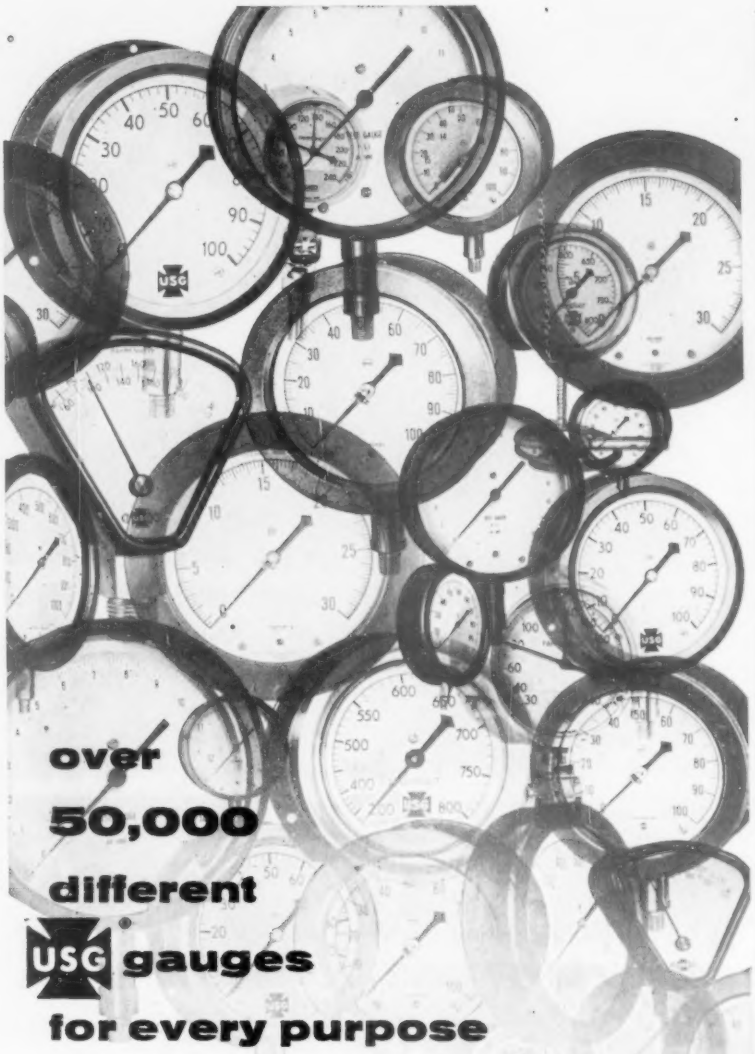
Here's how to keep fuel costs at rockbottom . . . and make them stay there for the life of your equipment: K&M High-Pressure Insulations. Even severe operating conditions can't interfere with their insulating efficiency. They handle temperatures up to 1900°F. Come in a variety of sizes and thicknesses. In pipe or block insulation.

Write to us today for a free brochure. It shows how you can insure more precise process control . . . greater heat efficiency . . . with K&M.

K·M
BEST IN ASBESTOS

KEASBEY & MATTISON
COMPANY • AMBLER • PENNA.

For More Information Write No. 228 on Inquiry Card—Page 32



If you have requirements for pressure or temperature instruments, your best source is United States Gauge.

USG has a RUGGED, ACCURATE, DEPENDABLE gauge or instrument to fill almost every need . . . from its famous high-accuracy Test Gauges and Supergauges to low-cost steel case gauges not requiring the high accuracy or heavy duty construction of the Supergauge line.

More than 50,000 different gauges—the industry's most complete line—are readily available for applications from panelboards or individual process control to pumps, compressors, or other equipment.

Call your nearest USG Distributor today . . . see the "Yellow Pages" of your phone book or write the factory for help with your special requirements.

USG UNITED STATES GAUGE
Division of American Machine and Metals, Inc.
Sellersville, Pa.

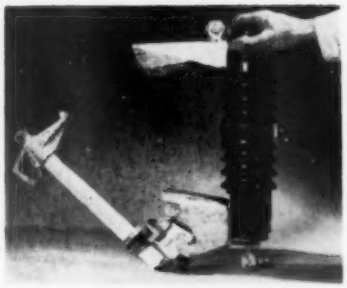
Home of the SUPERGAUGE®

MORE THAN 50,000 TYPES OF GAUGES • SUPERGAUGES • SOLID FRONT GAUGES • RECEIVER GAUGES • TEST GAUGES • RECORDERS • CONTROLLERS • TRANSMITTERS • PSYCHROMETERS • AVIATION INSTRUMENTS

For More Information Write No. 229 on Inquiry Card—Page 32

Products

Heavy-Duty Loadbreak Cutout



Westinghouse Electric Corp., Box 2099, Pittsburgh 30, Pa., is marketing an extra heavy-duty loadbreak cutout (type DX) in ratings of 5.2 and 7.8 kv, with fault interruption capacity of 10,000 amp. At a 15 kv rating, the interruption capacity is 8000 amp. The fuse tube of the cutout is heavier and made of stronger Micarta than previous lower rated models. The cutout additionally features a double vent, containing an expendable cap at the top. This melts when pressures inside are too high to escape through the regular aperture. The cut out is available with a loadbreak fuse holder, if desired.

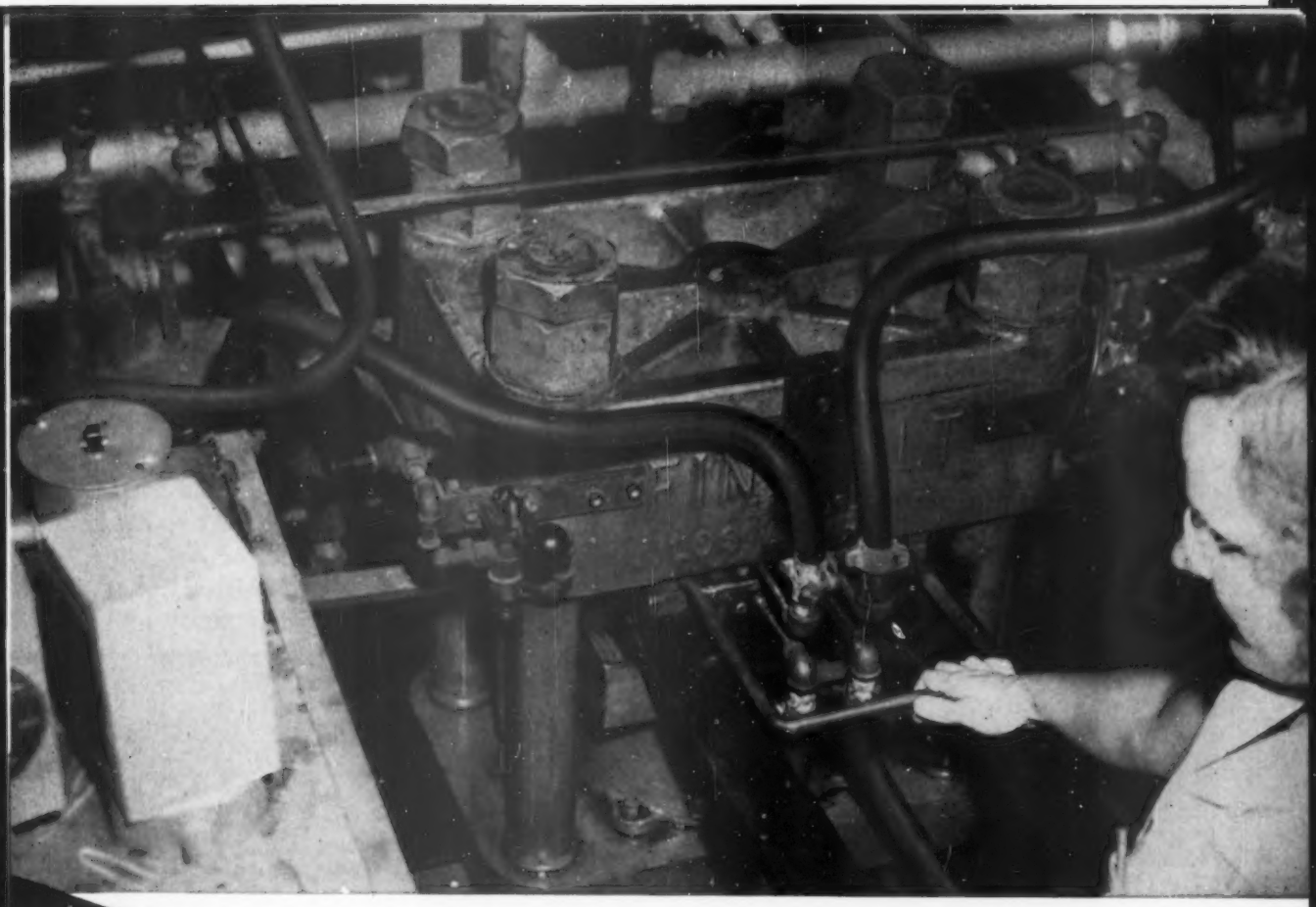
Write No. 38 on Inquiry Card—Page 32

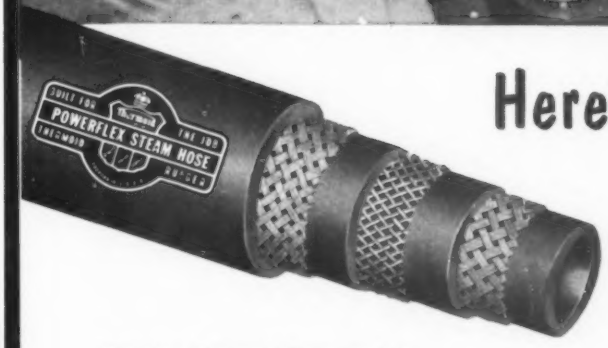
Fork Truck Handles Delicate Loads

An attachment has made it possible for a line of electrically powered lift trucks to handle extremely fragile loads without the aid of pallets. The attachment consists of a Cascade clamp, side shifter and manual pressure relief valve, which when attached to the fork truck allows transporta-

(Please turn to page 132)

For More Information Write No. 230 on Inquiry Card—Page 32→





Here's a Record Making Hose!

Every 30 seconds superheated steam follows ice water—and Thermoid Hose outlasts all others

In manufacturing phonograph records, Plastic Products Company, Memphis, uses Thermoid Wire Braid Steam Hose to carry steam into its molds at 375°F. under 175 lb. pressure. Every 30 seconds, the steam is followed by icy cold water—*through the same hose!* This hot and cold cycle goes on eight hours a day, month after month.

Thermoid outlasted every other hose tried by this record maker.

Here is another example of how Thermoid Personalized Service fulfills special demands. To meet the most exacting requirements of any plant application, your Thermoid Distributor carries a complete line of Hose, Conveyor Belting and Multi-V Belts.

There's a Thermoid Conveyor Belt

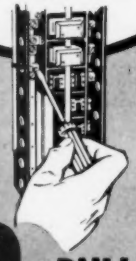
. . . and Matched Multi-V Belts for every industrial need.

Thermoid

Thermoid Company, Trenton, N. J.

CHACE THERMOSTATIC BIMETAL

ACTUATES ANOTHER PRECISION PRODUCT...



A Product of
BullDog Electric Products Co.
Detroit, Michigan

BULLDOG PUSHMATIC CIRCUIT BREAKERS

In residences, institutions, commercial and industrial establishments the world over, BullDog Pushmatic Circuit Breakers provide positive and effective protection against the dangers of normal overloads. The ever-growing popularity of BullDog thermal-magnetic Pushmatics stems in large measure from the exclusive pushbutton feature which makes it possible to check the unit at a glance or touch, day or night. The unique "screw-retainer" design makes installation easier and faster. And finest quality is built into Pushmatics in every detail of design and construction.

An important factor contributing to the dependability of BullDog Pushmatics is the Chace Thermostatic Bimetal element which protects against overloads in the lower current range plus a magnetic solenoid which protects against heavy overload and short circuits. Precision-rolled by Chace to the closest tolerances—specially processed to prevent metal separation—tested under the most gruelling conditions—and carefully inspected to assure quality of product, Chace Thermostatic Bimetal provides instantaneous, automatic, and unfailing protection of valuable equipment. In hundreds of leading manufacturing firms the name Chace Thermostatic Bimetal stands for the utmost in reliability, result of over a third of a century as exclusive producers of precision bimetal.

Remember Chace when you design for protection of valuable equipment or for temperature actuation or indication. Dependable Chace Thermostatic Bimetal is available in 28 types, in strip, coil or completely fabricated and assembled elements made to your specification. (We do not manufacture complete controls or any other devices in competition with our customers). Write today for new 44-page booklet, "Successful Applications of Chace Thermostatic Bimetal", containing interesting uses of bimetal and many pages of engineering data that may help you solve your product problems.

IT BENDS WITH THE HEAT

W. M. CHACE CO.
Thermostatic Bimetal
1685 BEARD AVE., DETROIT 9, MICH.

For More Information Write No. 231 on Inquiry Card—Page 32

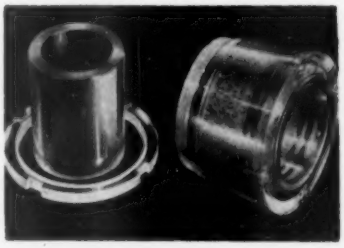
Products

(*Continued from page* 130)

tion and high stacking of such delicate non-palletized goods as fluorescent lights. To pick up a load, the operator simply straddles the goods with the clamp. He then closes the clamp on the load, raises the load and drives away. According to the manufacturer, Lewis-Shepard Products, Inc., 125 Walnut St., Watertown 72, Mass., the clamp handles loads from 20.5″ to 70″ wide.

Write No. 39 on Inquiry Card—Page 32

Bearings with High Load Capacity



Briney Mfg. Co., P.O. Box 2208, Pontiac, Mich., has incorporated many more balls than conventionally utilized in an anti-friction bearing it is placing on the market. This results in a greater bearing contact area leading to high load capacity. A minimum space is required to house the ball bearings, thus permitting a maximum ID. Seated completely within the arbor support housing, the bearing does not project into the work area. Interference with work and fixture is thus eliminated. Arbor chatter and binding are minimized, enabling machine feeds to be increased.

Write No. 40 on Inquiry Card—Page 32

Hot Water Heaters Need No Outside Wiring

A line of gas-fired volume hot water heaters that require no circulators or outside electrical wiring is announced by Hydrotherm, Inc., Northvale, N.J. The heaters feature extremely high output of hot water, in proportion to their size. The smallest

(*Please turn to page* 134)

For More Information Write No. 232 on Inquiry Card—Page 32→

CAPEWELL

technite® high speed steel

band sawing case history

THE USER: Dynamatic Division Eaton Manufacturing Co., Kenosha, Wisc.

THE MATERIAL: #1020 cold roll 5½" stock.

THE JOB: Accurately cut blanks for dynamometer part.

THE PROBLEM: Uneven cuts, low speed, short blade life.

THE ANSWER: TECHNITE High Speed Steel Band Saw Blade.

THE RESULT: Extreme accuracy, fast cutting, and long blade life.

This case history is but one of many which illustrate the advantages of Capewell Technite Bands. Available in regular, skip or shark tooth design, these precision band tools are furnished welded and cut to length for recommended machines only. The Capewell Sales Engineer in your area will be glad to discuss cutting applications which will enable you to increase substantially your cutting accuracy and speed.

6CA87AR

SOLD ONLY THROUGH CAPEWELL DISTRIBUTORS

who provide complete inventory, engineering assistance, delivery when you need it.

The Capewell Manufacturing Company
Hartford 2, Connecticut

I am interested in Technite High Speed Steel Band Saw Blades.

NAME_____

COMPANY_____

ADDRESS_____

CITY_____ STATE_____

It Changed Buyers' Habits

If you're still buying machine key stock in 12-ft. lengths, storing it in steel racks, then moving those unwieldy lengths to your production area, you're missing a good bet to reduce storage and handling costs — save production time and lower your key stock inventory. Buy Mak-A-Key, the key stock that's packaged in convenient 12-inch lengths and can be stored close to your assembly area. Just cut file and fit. Save time, reduce production steps, lower down time.

STANDARD ASSORTMENT in sturdy fiberboard container: 3/16, 1/4, 5/16, 3/8, 7/16, 1/2 in. squares.

New 7-11 Kit — 7 sizes fit 11 keyways, from 1/8" sq. to 7/16" sq. Additional sizes available.

DEVAN-JOHNSON COMPANY
587 Rathbone Ave., Aurora, Ill.

For More Information Write No. 233 on Inquiry Card—Page 32

Products and Ideas

(*Continued from page* 132)

unit (4.5 cu. ft.) provides 75 gphr raised 60 F, while the largest (15.5 cu. ft.) supplies 400 gphr of similarly heated water. This high heat output for a small space ratio is due to the improved design that achieves 40% higher heat transfer per pound of cast iron than hitherto possible.

Write No. 41 on Inquiry Card—Page 32

Electrode Welds Light-Gage Steel

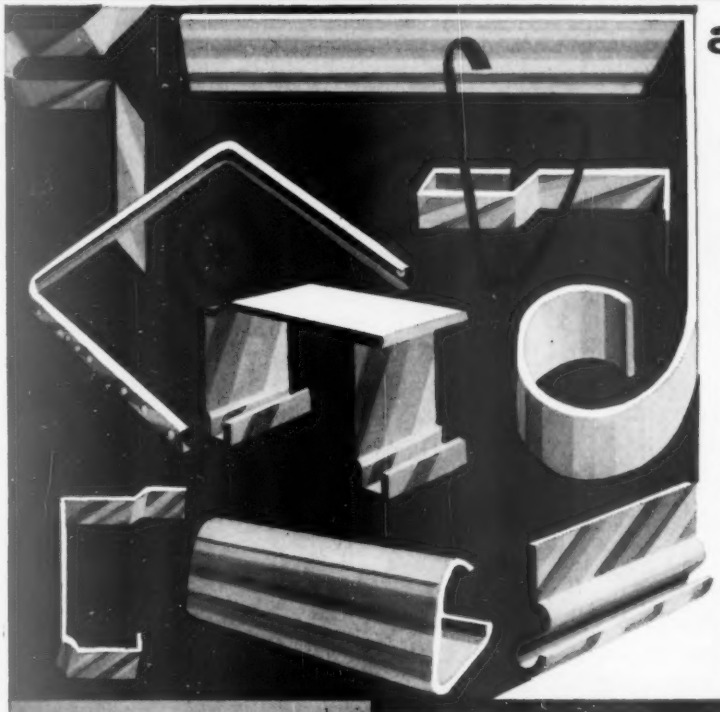
Air Reduction Sales Co., 150 E. 42nd St., New York 17, N.Y., has introduced "Airco 90C," an electrode for use with small-transformer power sources in the all-position welding of light-gage steel. It features the easy starting tip that arcs immediately under low open circuit voltage. The arc is quiet and steady and the coating aids in controlling metal transfer. Complete slag coverage is maintained without arc interference. The deposit is of excellent appearance: smooth, uniform and normally convex. Tensile strength is 76,400 psi; yield strength 66,500 psi; elongation in 2", 24.5%.

Write No. 42 on Inquiry Card—Page 32

Rubber Mounted Bearings

Zone hardened ball bearing units are available in pillow block, flange and cartridge units mounted in a synthetic oil-resistant rubber ring which fits snugly in a pressed steel housing. Zone hardening, labyrinth seal and land ridden ball retainer are standard in the rubber mounted line. The result, according to the manufacturer, Stephens-Adamson Mfg. Co., Aurora, Ill., is a combination to assure smooth, silent operation of any quality air conditioning unit.

Write No. 43 on Inquiry Card—Page 32



a part of your future

Leading manufacturers in many key industries specify WERNER Roll-Formed shapes utilizing Aluminum — Carbon Steel—Stainless Steel—Zinc—Bronze and various clad metals ...to answer rigid quality and service requirements, to meet tight production schedules. WERNER's complete plant facilities also assure fullest controls of every manufacturing phase—including all secondary operations—from coil stock to finished part.

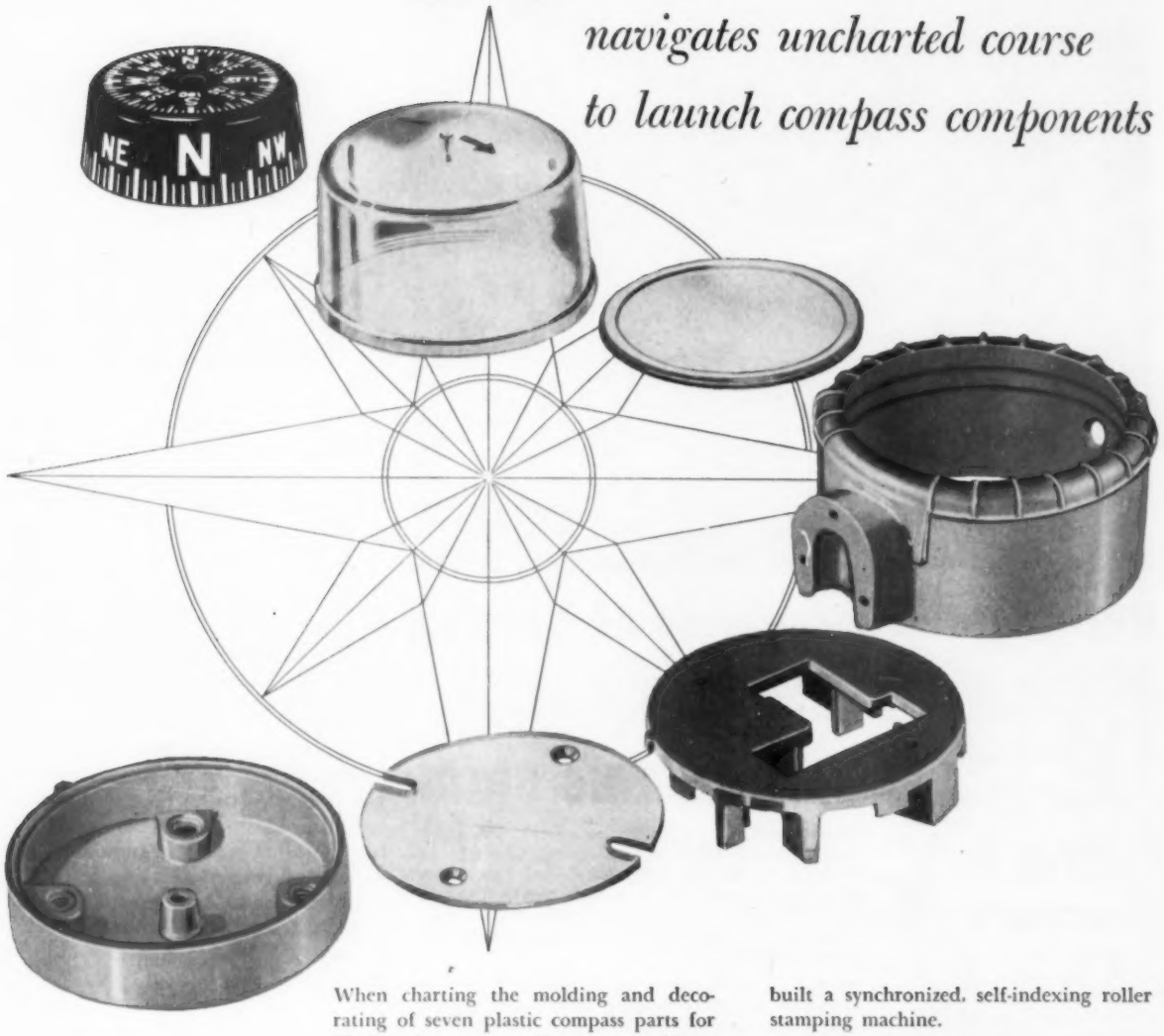
Find out how WERNER Roll-Formed shapes can brighten your product and production future.

R. D. WERNER CO. INC.
DEPT. PG-1 • GREENVILLE, PA. • PHONE: GREENVILLE 1600
ALUMINUM

For More Information Write No. 234 on Inquiry Card—Page 32

Nosco "CAN DO"

navigates uncharted course
to launch compass components



When charting the molding and decorating of seven plastic compass parts for Taylor Instrument Companies, Nosco "Can Do" recognized the hidden danger threatened by the lettered "compass card." This card is cone-frustrum shaped and it's no simple matter to line up the peripheral lettering around the side surface with the conventional flat hot stamping on the top. The card was molded in a multiple cavity die and each cavity had to be sized perfectly so that all parts would be exactly alike . . . else the lettering would be off. To apply the peripheral lettering consistently and correctly, Nosco designed and built a synchronized, self-indexing roller stamping machine.

The other compass parts were molded in two combination molds handling three items each—cutting down both tooling and molding costs. Nosco also annealed the two thin-walled plates and provided a mirror finish on the crystal-clear acrylic dome. The result? A compass that's true.

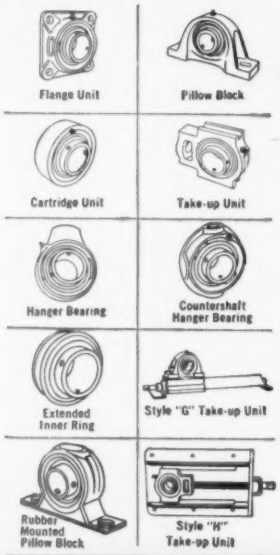
Why not try Nosco "Can Do" on your next plastic part? Let one of our sales-engineers advise your buyers and designers how Nosco "Can Do" can produce your needs in practical plastics. Just write.

For other case histories—and for a glimpse of the Nosco plant and facilities, send for the free 12-page brochure, "How the Nosco Plant Works to Produce Your Needs in Practical Plastics."

NOSCO plastics, inc. • erie 1, pa. *World's largest injection molding plant*

For More Information Write No. 235 on Inquiry Card—Page 32

Uncover new standards of bearing quality with SEALMASTER



BALL BEARING UNITS

The instant you lift the lid on a SEALMASTER carton you've taken a step in the direction of quality. Not till you've experienced the hours of continuous, trouble-free performance SEALMASTER Ball Bearing Units provide, however, are you really cognizant of the advantages of this quality line.

Here's an exclusive combination of features found in no other bearing units! And here's real quality control, too—the kind you insist on within your plant.

Whether the bearing units you buy are for the products you build or operate—it'll pay you to discover the advantages of SEALMASTER. Factory Representatives and Distributors in all principal cities.

Write today for Bulletin 454

SEALMASTER BALL BEARING UNITS

NAME_____
FIRM_____
STREET_____
CITY_____ STATE_____

SEALMASTER BEARINGS A DIV. OF STEPHENS-ADAMSON MFG. CO. 51 RIDGEWAY AVE., AURORA, ILL.

For More Information Write No. 236 on Inquiry Card—Page 32

Products

Ultrasonic Cleaning, Degreasing

A new ultrasonic cleaning generator, the AP-200 Sonogen, is claimed to simplify manual or conveyorized cleaning and degreasing and to remove insoluble contaminants quicker than other methods. The generator weighs 175 lb, and has an average power output of 1 kw with a peak on pulses of 4 kw. Housed in an aluminum cabinet, it has a simple one-tube pulsed oscillator. The unit cleans by supplying 38-kc pulsed power to the immersed transducer which converts the electrical energy into mechanical vibrations to cause cavitation in the cleaning solution and force soils off surfaces of immersed objects. Cleaner is made by Bronson Ultrasonic Corp., 40 Brown House Rd., Stamford, Conn.

Write No. 44 on Inquiry Card—Page 32

Adjustable Speed Drives

A line of speed variators has been made available by the Current Motor and Generator Department of the General Electric Co., Schenectady, N.Y., in ratings of 3 hp through 150 hp and in speed ranges of 8 to 1 and higher. They are designed for use on continuous process lines, machine tools, crane hoists or wherever adjustable speed for fine control is needed. An automatic regulator with silicon rectifiers is standard on the new line to provide smooth, timed acceleration and deceleration to preset speed, in addition to voltage regulation.

Write No. 45 on Inquiry Card—Page 32

ONE TRUCK...DOUBLE DUTY

SAVE SPACE! Mast up! Stacks high, makes full use of air rights. Helps you get full value from every foot of your warehouse space.

SAVE TIME! Mast down! Allows truck to enter low-headroom areas – eliminating time-consuming re-handling operations.

NEW YALE TRIPLEX MAST

FEATURES HIGH LIFT, LOW-HEADROOM CLEARANCE

for fast, continuous handling operations

210"-HIGH REACH – 96"-LOW SILHOUETTE
Boost storage capacity of present warehouse! Tier loads high as 210"! With mast up, take full advantage of air rights. With mast down, move safely into freightcars or trailer trucks–into any low-headroom area. Result: smooth, continuous flow of materials in and out of your storage, production and shipping areas.

New Yale Triplex Masts offer outstanding features–new interlocking I-beam construction for greater load stability–new open-front design that gives the driver full forward visibility.

Yale Triplex Masts are available with maximum fork-lift heights of 108", 144", 180", 198" and 210". With mast down, overall truck heights are 59", 71", 83", 90", and 96" respectively. Capacities: 3,000, 4,000 and 5,000 lbs. For full facts, write The Yale & Towne Mfg. Co., Philadelphia 15, Pa. Dept. A-251.

SEE YALE TRIPLEX MASTS IN ACTION AT THE...

1958 National Plant Maintenance & Engineering Show
International Amphitheatre
Chicago • Jan. 27 to 30

YALE* *REG. U. S. PAT. OFF.

INDUSTRIAL LIFT TRUCKS AND HOISTS

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GASOLINE, ELECTRIC, DIESEL & LP-GAS INDUSTRIAL LIFT TRUCKS • WORKSAVERS
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YALE MATERIALS HANDLING DIVISION, A DIVISION OF THE YALE & TOWNE MANUFACTURING CO. MANUFACTURING PLANTS: PHILADELPHIA, PA.; SAN LEANDRO, CALIF.

For More Information Write No. 237 on Inquiry Card—Page 32

JOLIET WASHERS

First for Quality — Modern automatic machines backed by rigid quality-control procedures assure you of uniform, high-level quality. Joliet is the world's foremost producer of washers — any sizes, any metal, any quantity.

JOLIET WROUGHT WASHER COMPANY • Joliet, Illinois

No. 1 Source with No. 1 Plants

Write for catalog listing standard washer shapes and sizes. Special washers, too.

Purchasing

News

Air Force Buying Techniques Described

Air Force Base Procurement Offices spent nearly a billion dollars last fiscal year under the Base Procurement Program according to Air Materiel Command officials.

A substantial portion of $973,662,458, the actual amount spent, flowed into communities near the 263 Air Force bases located in the United States and abroad that are authorized a base procurement program.

TenneVa Ass'n Hears Talk by Editors

A regular meeting of the TenneVa Purchasing Agents association was held in Bristol, Tenn. recently. Guest speakers were Paul V. Farrell, executive editor, and Dean S. Ammer, technical editor, of Purchasing Magazine.

The editors' joint talk was a presentation on how purchasing agents can help forecast business trends—both in large and small companies. Mr. Farrell outlined the techniques of developing economic information and listed important sources for business statistics and analyses. Mr. Ammer, illustrating how purchasing agents could use such information in a practical way, developed a forecast of business conditions for the coming year.

Colorado University Starts Executive Training Program

A two year executive training program will be inaugurated at the University of Colorado in Boulder this summer.

Designed for middle management personnel, the program this year will be held during the two weeks from June 15 to June 27. According to Robert S. Wasley, director, the total cost for instruction, room and board over the two year period will be $1,000.

For More Information Write No. 238 ←on Inquiry Card—Page 32

Engineers' Salaries Seen "Returning to Normal"

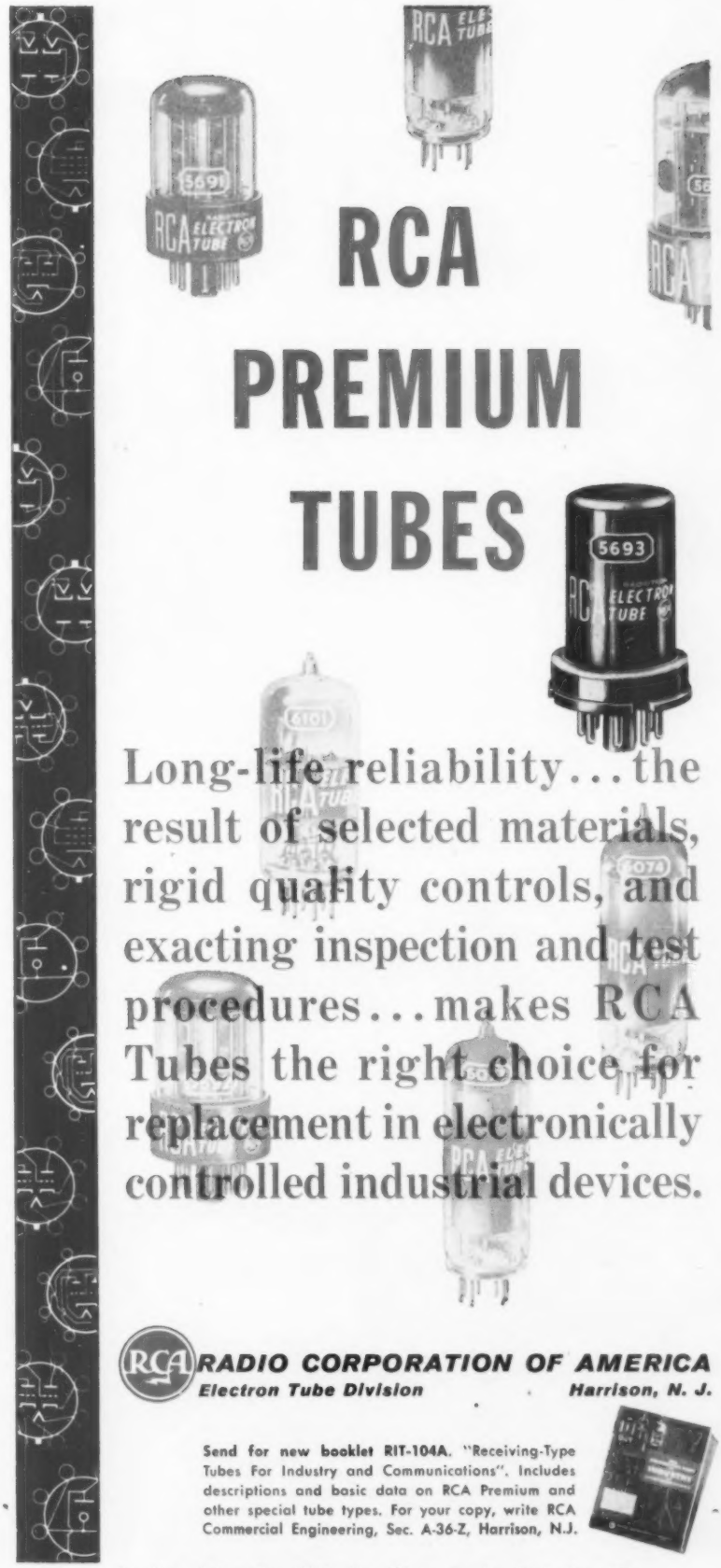
Salary levels of engineering, scientific, and administrative employees in American industry rose an average of 5.9 per cent between June, 1956, and June, 1957, according to a survey by the American Management Assoc.

This increase is appreciably lower than the 8.6 per cent average salary rise reported for the same group for the year ended in June, 1956. The change may indicate, the AMA report suggests, that the compensation of engineers is returning to normalcy. This years average pay increase for technical and administrative workers closely approximates those found in recent surveys of top and middle management compensation, suggesting that administration of salaries at all levels has become relatively uniform.

Percentage salary increases during the year varied for individual specialties. The maximum shown was for quality control engineers, who averaged 7.9 per cent in raises between June, 1956, and June, 1957. Some electrical and mechanical engineers increased their compensation by an average of 7.5 per cent. The smallest increases shown were for systems and procedures analysts at 3.8 per cent.

Median annual salaries currently paid to engineers in all fields of activity combined range from about $5,400 in the lowest or entering category to approximately $13,100 at the highest non-management level, the results of the survey show. Classified in the lowest level are engineers with bachelor of science degrees plus up to one year of experience. Classified in the lowest level are engineers with bachelor of science degrees plus up to one year of experience. Classified on the highest level are engineers of long experience responsible for planning, conducting, and supervising assignments involving large and important projects.

Many individual salaries, of course, vary considerably from the median. For some specific types of engineering jobs individual salaries are as high as $20,000 a year.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PREMIUM
TUBES
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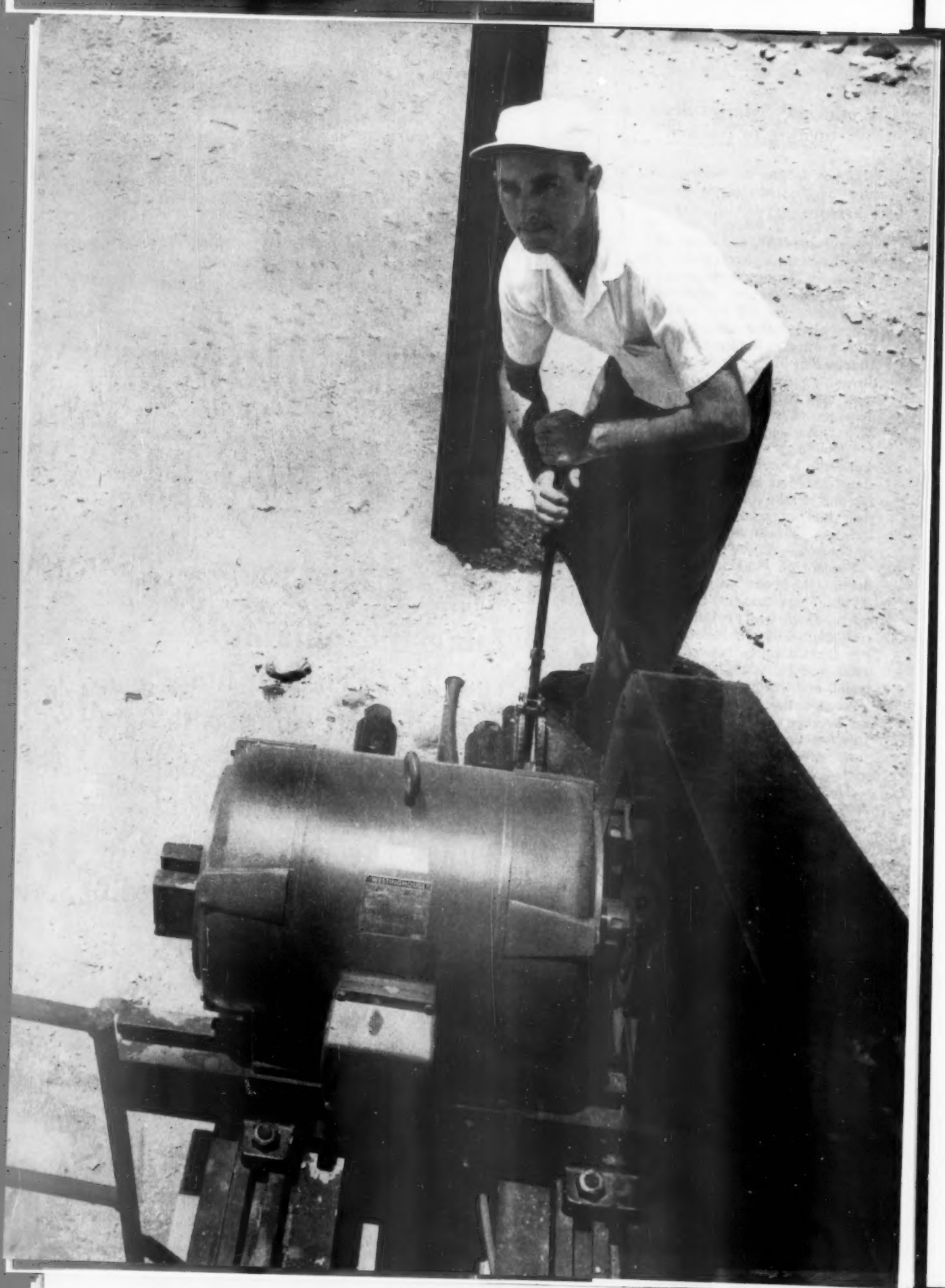
Long-life reliability... the result of selected materials, rigid quality controls, and exacting inspection and test procedures... makes RCA Tubes the right choice for replacement in electronically controlled industrial devices.
RADIO CORPORATION OF AMERICA
Electron Tube Division
Harrison, N. J.
Send for new booklet RIT-104A. "Receiving-Type Tubes For Industry and Communications". Includes descriptions and basic data on RCA Premium and other special tube types. For your copy, write RCA Commercial Engineering, Sec. A-36-Z, Harrison, N.J.
For More Information Write No. 239 on Inquiry Card—Page 32



Sand . . . heavy rain . . . extreme heat . . .

Nothing stops These Westinghouse Life-Line "A" Motors

dependably driving oil well pumps in Odessa, Texas district of The Atlantic Refining Company, 24 hours per day, 7 days a week!

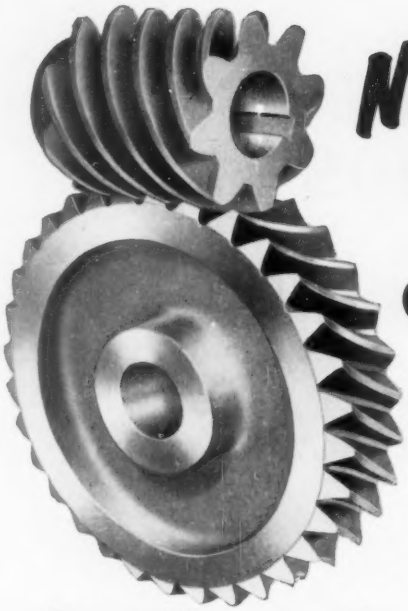
"Here's an application," says A. P. Johnston, production engineer at The Atlantic Refining Company, "where we must have continuous motor operation . . . sometimes for as long as 18 months . . . with virtually no maintenance or repair. Many of our pumping stations are remotely located, automatic and unmanned. Any stoppage or motor failure would result in the loss of several hundred barrels of oil. Motor repairs in the field are prohibitive in cost. We must have *complete* motor reliability and that's exactly what we get from our Westinghouse Life-Line® "A" motors."

How about you? Got a really tough motor application which you can't afford to pamper? Then ask your Westinghouse sales engineer to show you how the dependable Life-Line "A" pays for itself through reduced maintenance and repair. Or write to Westinghouse Electric Corp., P.O. Box 868, 3 Gateway Center, Pittsburgh 30, Pennsylvania. J-22055

YOU CAN BE SURE... IF IT'S Westinghouse

On this pumping unit, the 15-hp Life-Line "A" motor operates in an atmosphere of damaging dust, sand and moisture. Despite continuous, heavy-duty service, motor has never suffered any overheating since first installed. Prelubricated bearings of the Life-Line "A" eliminate periodic greasing . . . keep lubricant in . . . dirt out.

For More Information Write No. 240 on Inquiry Card—Page 32



NEED WORM SETS?

Get our quote!

Tell us your needs. We're specialists in cutting worm gear sets. Whatever your specifications call for . . . from small control valves to heavy machinery . . . you'll appreciate Sewall's service. You'll benefit from Sewall's vast experience in supplying exacting customers.

Sewall's complete gear service can help you . . . call us!

Custom-made gears

Made-to-order sprockets

Special gear racks—to order

Standard gear racks—in stock

Our reputation is based on quality, service and price. If you're like our regular customers you're vitally concerned with these three factors when you buy gears. (1) Gears must meet your specifications exactly, in strict accordance with your prints. (2) Gears must be delivered as scheduled. (3) The price must be reasonable. Sewall gears are made by men who are fussy about specifications. We have a wide range of late-model machine tools, inspection instruments and checking equipment regularly serving customers across the nation. Our large modern plant is handy to rail, truck and air transportation.

Let us quote on your specifications!

Write for New Bulletin No. A-112

The Sewall Story . . . richly illustrated with in-plant photos . . . includes listing of capacities and facilities.

SEWALL GEARS

E. B. SEWALL MANUFACTURING COMPANY

705 Raymond Avenue, St. Paul 14, Minn. Midway 5-7721

For More Information Write No. 241 on Inquiry Card—Page 32

News

Heat Exchanger Standards Seen as $3.9 Million Saving

Utilization of national standards for heat exchangers could result in savings of $3. million annually, according to the Chemical Industry Advisory Board of the American Standards Association .

In a report prepared by the board at the request of the Manufacturing Chemists Association, a recommendation was made that the ASA establish a project for developing such standards. J. G. Henderson, head of the standards department of Union Carbide and Chemicals Co. and chairman of the CIAB, said the project would cover shell and tube heat exchangers of various types — including fixed tube sheet, U-tube, internal floating head, outside packed floating head and the kettle-type reboiler.

In addition to furnishing adequate specifications and an efficient method of procurement, Mr. Henderson stated, these standards would aid manufacturers in reducing design and inspection time, speed delivery and simplify maintenance. The salvage and reuse value of equipment would also be increased, he added.

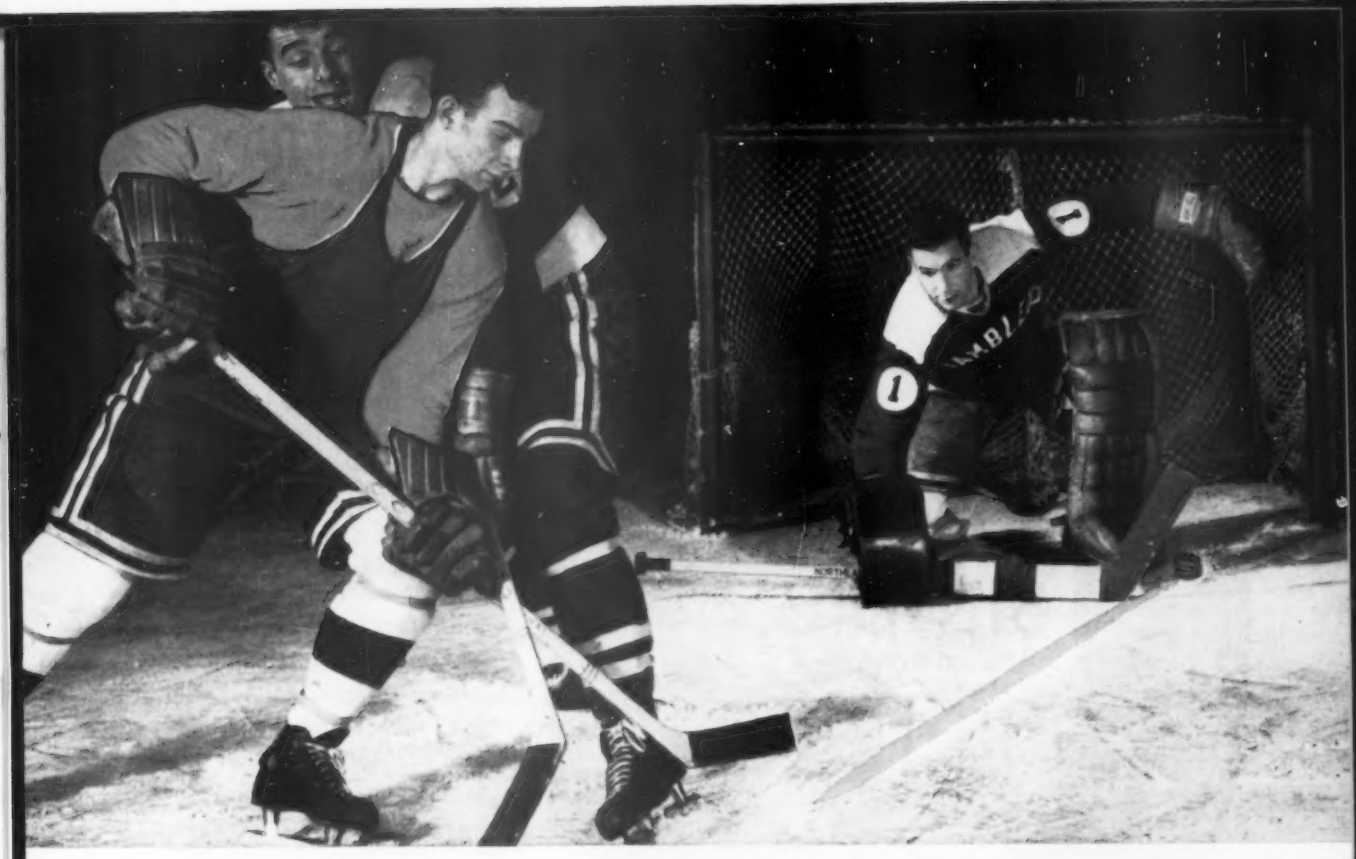
Plant Maintenance Show To Be Held in Chicago

The Plant Maintenance & Engineering Show and Conference will be held in Chicago January 27-30. The show is scheduled for the International Amphitheatre, while the conference will be held at both the Amphitheatre and the Palmer House.

This year's show will be the largest in its history, according to its producers, Clapp & Poliak, Inc. of New York. About 425 companies will display exhibits.

The conference will hear speakers from a wide variety of American industries. More than 66 engineers and industrialists from 22 states and Canada will address the group.

For More Information Write No. 242 on Inquiry Card—Page 32→



Winner by three points!

The goals are always in *your* favor when you have CIMCOOL® Concentrate on the job in your plant. Here's why CIMCOOL leads the league—actually is the largest selling chemical cutting fluid in the world—winning by three big points:

CIMCOOL LOWERS COSTS because it's longer lasting in machines. Thus, it reduces downtime and cuts labor costs for cleaning and changing.

CIMCOOL DOES A BETTER JOB because of its chemical lubricity. It permits faster speeds and feeds, for it combines friction reduction and cooling capacity in a degree never before attained by old-fashioned coolants.

CIMCOOL IS CLEAN, doesn't soil hands or clothing. It contains no skin irritants. It leaves no slippery film on shoes, floors, machine or work. It can't smoke, can't burn, and virtually eliminates rancidity and foul odors.

So get in the winning column. See your CIMCOOL distributor. He'll give you full information on *all* the advantages of CIMCOOL Concentrate—as well as details on the entire family of CIMCOOL Cutting Fluids.

Or contact us direct and we'll have one of our Cincinnati Milling-trained machinists call on you—without cost or obligation. Write, wire or telephone Sales Manager, Cincinnati Milling Products Division, Cincinnati 9, Ohio.

*Trade Mark Reg. U.S. Pat. Off.

CIMCOOL CUTTING FLUIDS

CIMCOOL **Concentrate**—The famous pink fluid which still covers 85% of all metal cutting jobs. Effective, economical and clean.

CIMCOOL **Tapping Compound**—Permits the use of highest tapping speeds and increases tap life amazingly.

CIMPLUS The transparent grinding fluid with exceptional rust control. Also used for machining cast iron and as a water conditioner with CIMCOOL Concentrate.

CIMCUT **Concentrates** — For jobs requiring oil-base cutting fluids. Added to mineral oils, they give economical mixes for higher speeds and feeds.

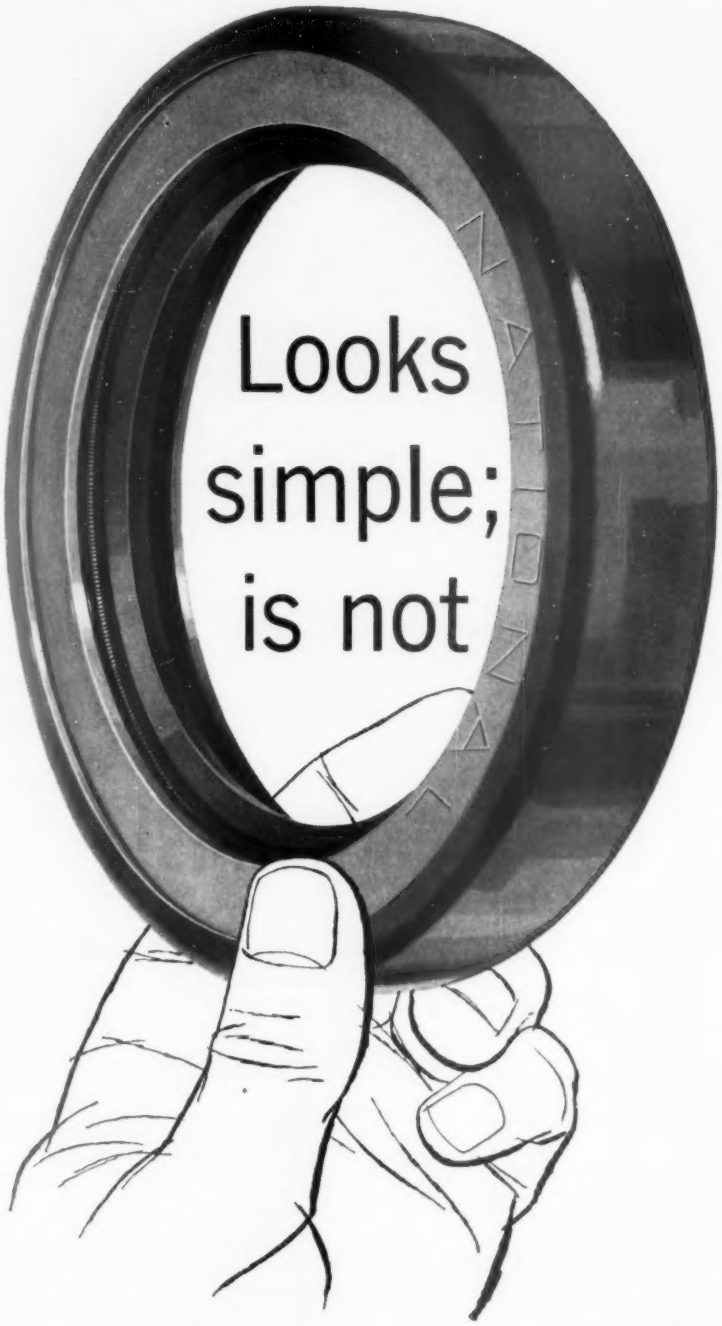
CIMCOOL **Bactericide** — The most effective agent yet developed to overcome rancidity and foul odors.

CIMCOOL **Machine Cleaner** — The two-phase non-corrosive cleaner that removes grit, dirt, slime and oil.

CIMCOOL Cutting Fluids

for 100% of all metal cutting jobs

PRODUCTION-PROVED PRODUCTS OF THE CINCINNATI MILLING MACHINE CO.



A good oil seal is a carefully engineered, precision assembly of fine tolerance components. Each part must be precisely right for the given application or good sealing is impossible.

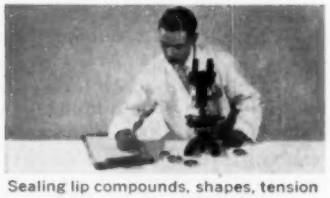
Poorly engineered or incorrectly specified seals involve the user in retooling, remanufacture or premature field replacement.

Rather than risk "do it yourself" seal specifying, leading manufacturers consult National Seal Applications Engineers. This insures technical help of the highest order, correct seals, and protection against sealing failure before and after delivery.

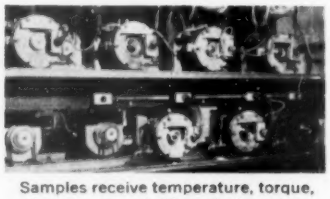
Are your engineers taking advantage of this unique, obligation-free service? (Now in its 36th year).

Three of many steps in designing a new oil seal

Exhaustive study of operating conditions evolves new seal's basic design



Sealing lip compounds, shapes, tension springs are engineered and tested



Samples receive temperature, torque, dry run, run out, life and other tests

4140

NATIONAL SEAL
Division, Federal-Mogul-Bower Bearings, Inc.
General Offices: Redwood City, California
Plants: Van Wert, Ohio, Redwood City and Downey, California

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National Seal Applications Engineers:
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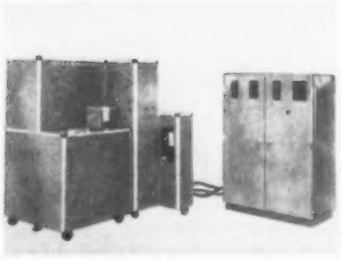
For More Information Write No. 243 on Inquiry Card—Page 32

Cutting Fluids
PRODUCTION-PROVED PRODUCTS OF THE CINCINNATI MILLING MACHINE CO

Office Equipment and Supplies

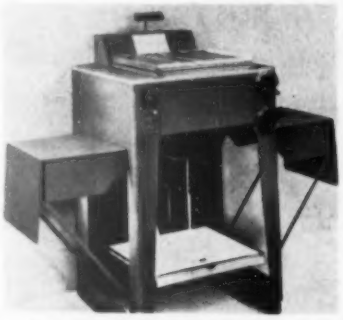


A new **system to process retail credit sales information** with automated equipment called the Stanomatic, is being introduced by the **Standard Register Company, Dayton.** This system, an electronic device capable of automatically accepting coded information from handwritten or machine written original source documents, enables gas stations, chain stores, retail establishments and public utilities to process information swiftly and accurately with a minimum of manual recording. Coded information appears in the form of dots which are capable of upsetting a sensitive balanced electronic circuit. The output of Stanomatic can be fed either directly into high speed data handling equipment or through memory circuits to conventional or slow speed data handling machines. A senior-translator in the machine reads the coded cards electronically at a speed of 15,000 digits per minute, while the unit translates the data into any code for the automatic operation of office machines at a rate of 500 forms a minute.

Write No. 46 on Inquiry Card—Page 32

A **disposable fountain pen** for industrial uses is announced by **Organic Products Company, Irving, Texas.** Named Mark-All, it is a heavy wall polyethylene squeeze tube with a felt writing point and filled with an ink that writes on both porous and non-porous surfaces. It dries in seconds, adheres to all metals, is non-corrosive and non-etching and is supplied in black, white, yellow, red, orange, green and blue.

Write No. 47 on Inquiry Card—Page 32



The Vertical 18 **Camera** has been introduced by **Kenro Graphics, Inc., Chatham, N. J.** Small and compact, it is designed **to handle all offset duplicator negative requirements** and requires only an hour's training to operate. A special flat field process lens covers 11 inches by 17 inches plus bleed, and enlarges copy area 300% while reducing it to 33-1/3% size. The camera occupies floor space comparable to two standard file cabinets and may be operated either inside or outside a darkroom. All sizing, focusing and exposure are automatic.

Write No. 48 on Inquiry Card—Page 32

Art Metal Construction Company, New York, recently published a 96-page book showing hundreds of **work and time saving office methods.** The various sections are devoted to such topics as: streamlining office methods, office layout and flow of work, business budgeting, auditing the work of the filing department and what the small office can learn from the large one.

Write No. 49 on Inquiry Card—Page 32

Dictograph Products, Inc., Jamaica, New York has added a new development to their **line of intercommunication equipment.** It allows the user to key his important contacts and dial all the others. The new development is an automatic dial switchboard which when combined with a Dictograph system, offers business and industrial operations, of larger size, the dual intercommunication they require. The integration of the two communication systems offers a customized executive intercom with special emphasis on management requirements. It links only people who work closely together, plus a general intercom system which fulfills the requirements between all points.

Write No. 50 on Inquiry Card—Page 32

With the new lower file cabinets you can have three drawers in the space formerly needed for two, four in place of three or even five drawers instead of four. Since most file folders are too high for use in these files, **Wabash Filing**

(*Please turn to page* 146)

Drawings can be quickly removed from the highest reach without disturbing other drawings.

New Filing System For Tracings

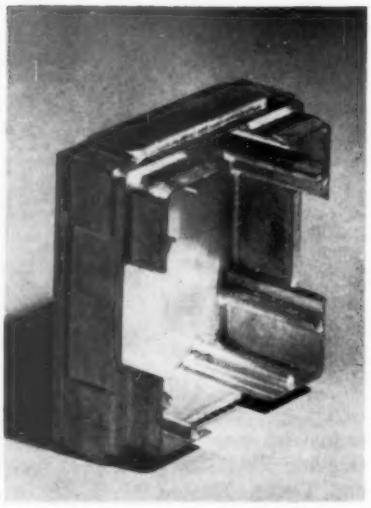
A NEW filing system has been developed for the storage of roll drawings, tracings and prints. Recently announced on a commercial basis by the Pack Manufacturing Co., Logan, Utah, the new Inter-Lock File has been thoroughly tested by a number of large concerns where the storage of roll prints has been a chronic problem. These companies are unanimous in their praise of the efficiency of the new filing system now being distributed by Eugene Dietzgen Company.

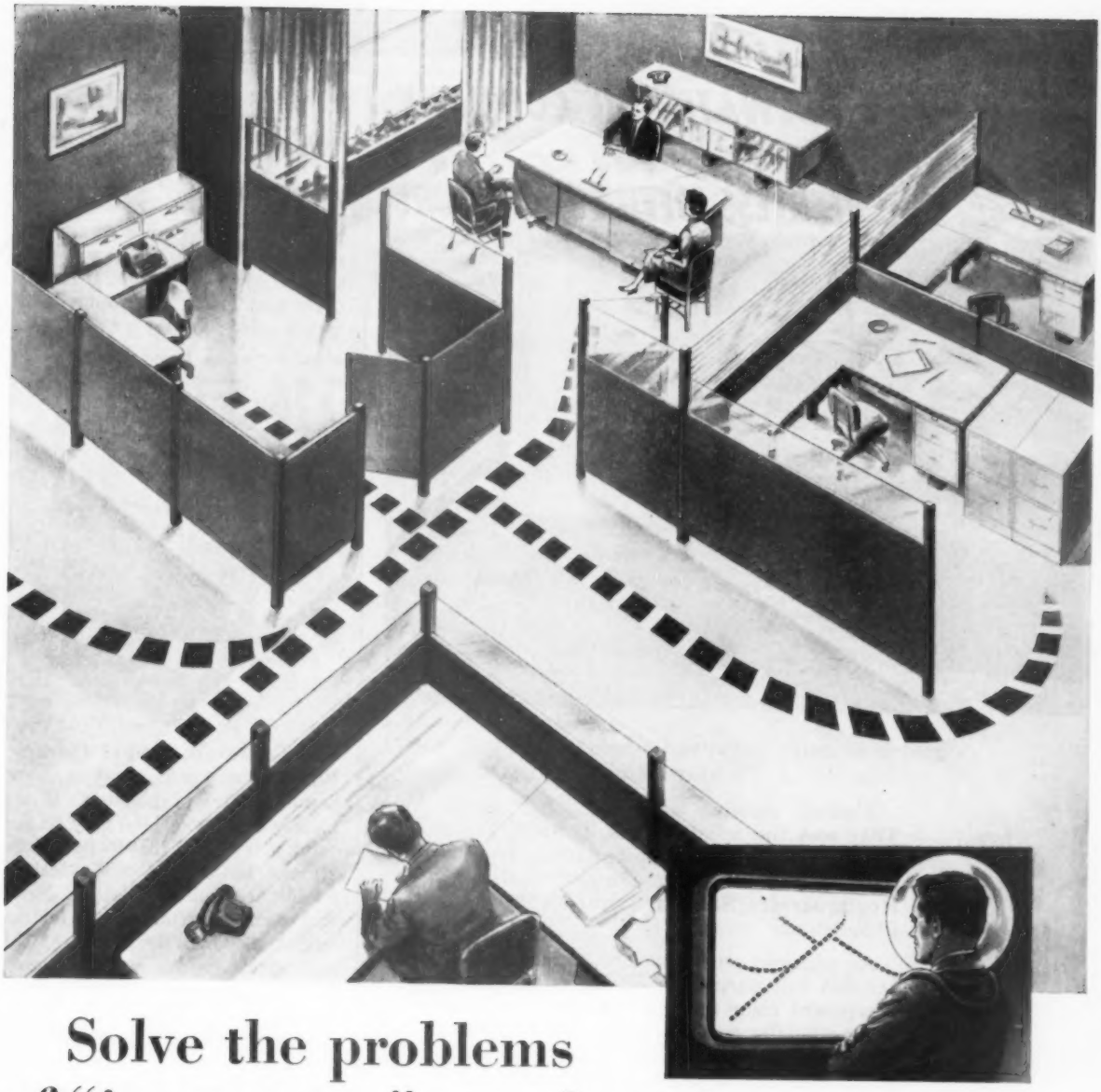
Each compartment consists of a fibre tube and outer cover locked between two die-cast ends. The front end is composed of the two zinc die castings—the frame and door. The zinc die casting is the back end of the unit. A special adhesive is used to attach the die castings to the fibre tube and cover and the result is an enclosure which is dustproof, crush-proof and fire resistant. The funnel-shaped opening makes it easy to insert or remove drawings without telescoping them or dog-earing the corners. Each unit is 2½" wide and high and is available in varying lengths to meet specific needs.

Cast channels on the die cast ends simplify the dove-tailing and keyway slots are machined in the front frame dovetails to receive key pins which rigidly lock the units into stacks of any number to meet individual roll tracing filing needs. This feature permits starting with a file set-up of modest proportions and adding new Inter-lock units as the need arises. It also enables the user to fit the units into small spaces which would otherwise be unusable, or they can be fitted around existing files.

When the compartments have been assembled into solid stacks, metal snap-on plates encase the sides and top of the entire stack, enhancing the appearance of the files. This metal casing, plus the fact that each compartment is heavily insulated from the others, provides exceptional fire-resistance for the protection of valuable tracings and prints.

The back is a zinc die casting with special adhesive to attach it to the fibre tube providing a dust-proof enclosure.





Solve the problems of "*inner*-space" travel, too!

How Y&E Steel Partitions help control the traffic in your office

Whether it's a trip to the moon or just to the stockroom in your office, *planned* traffic makes it easier.

Take the space inside your office area and divide it by "Y&E" Steel Partitions to avoid "swarming" congestion. You can *direct* traffic with distinctive aisles, or reroute it around crowded areas to make your office *controlled* in its effort.

You'll notice an increase in production—as well as morale—when you give your workers privacy and quiet. Distinctive surroundings in Neutra-Tone Gray, Surf Green or Driftwood Tan give them a pleasant atmosphere in which to work.

Get "Y&E" Steel Partitions at low cost. They're completely movable, too, for repeated revisions of office layout to meet new needs and expansion.

They come in 3 different heights and 11 different lengths. Panel inserts are available in clear glass, textured glass, acoustical steel, insulated steel, pegboard, corkboard, and chalkboard.

"Y&E" Steel Partitions, together with the complete line of "Y&E" coordinated office equipment, are available at your authorized "Y&E" dealer. Call him this week.

YAWMAN & ERBE MFG. CO., INC. 1060 JAY STREET • ROCHESTER 3, N.Y.

For More Information Write No. 244 on Inquiry Card—Page 32

I'm glad I work at

TIDEWATER OIL COMPANY

... we selected

PEERLESS OFFICE FURNITURE

- - and now enjoy improved efficiency, in a modern color setting

Modern coloring and functional design. That was the specifications listed by Tidewater Oil Company for office equipment for their Middle Atlantic District Marketing Headquarters, Suburban Station Building, Philadelphia.

As pictured, specifications were not only equaled but surpassed. Beige is the smart equipment color scheme and the equipment is functionally correct . . . for the equipment is by Peerless. In addition, floors are beige and gray, walls are beige, too, with just a touch of decorator green and red.

It's so easy to achieve color efficiency and office arrangement efficiency which Tidewater Oil Company now enjoys. Here's the easy way... just reach for that phone. Call your nearby Peerless Dealer to help you with the details. You'll find that he can offer you expert advice--that he's a good man to know.

As a start towards greater office efficiency, write us direct for your copy of the Peerless Metal Office Furniture catalog.

Our 27th Year

PEERLESS STEEL EQUIPMENT CO.

6600 Hasbrook Ave., Philadelphia 11, Pa.

NEW YORK CHICAGO HOUSTON LOS ANGELES

For More Information Write No. 245 on Inquiry Card—Page 32

Office Equipment

(*Continued from page 146*)

Supplies, Inc., Wabash, Indiana, has devloped a new series of **low file folders** and indexing materials as standard stock. The visibility and guide positions remain the same. In addition, the new folders still accommodate standard-sized correspondence and other materials.

Write No. 51 on Inquiry Card—Page 32

Ditto, Incorporated of Chicago, Illinois has announced a new **hand-operated duplicator.** Completely new from feed tray to receiving tray, the 18D-60 possesses all the features of the electric models, except the electric drive and controls pertaining to electric operation. Included are an 18-inch drum width which makes the machine suitable for duplicating such things as large drawings and financial statements up to 18 x 14 inches in size, while still handling 3 x 5 forms with equal ease. This new machine will feed a full 500 sheets of paper automatically, at a speed of 120 copies a minute. It will also accept paper from 13 lbs to card stock without adjustment.

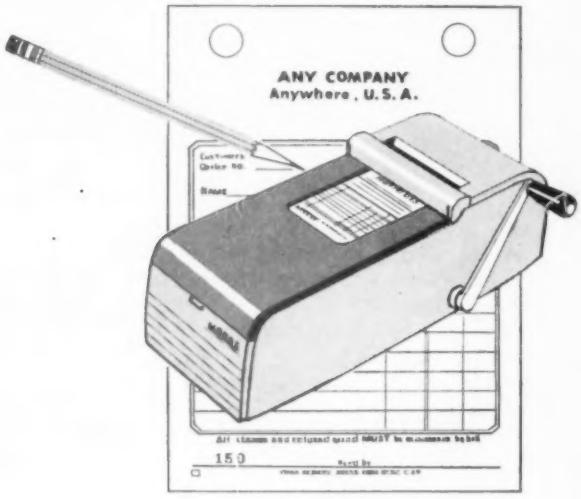
Write No. 52 on Inquiry Card—Page 32

The **Cel-U-Dex Corporation, New Windsor, New York** has suggested new use for attachable **colored signals.** An improvement in the manufacture of the transparent signals makes it possible to attach them easily to bond paper, as well as to light or heavyweight card stock. They hold firmly, but are handily slipped off.

Write No. 53 on Inquiry Card—Page 32

HOW TO REDUCE OFFICE COSTS

GET MACHINE SPEED IN HANDWRITTEN RECORDS



...with Moore-designed Register Forms

Moore-manufactured Register Forms are handwritten, yet give some systems as much speed, convenience and control as any writing machine could. Industry uses Moore Register systems in dozens of ways and places to get legible records, save time, and hold costs down.

The Moore Register, with Moore multiple-part system, comes in the size to fit your need. There are De Luxe and Electric models . . . stable, fast and trouble free; Portable and Pocket sizes to give on-the-spot efficiency.

In all cases, Moore Registers are engineered for easy handling and simple operation. Forms are always carbon-interleaved, ready to write.

The Register is only one of hundreds of ways Moore can help you record information efficiently. Whether your business is large or small, it costs you nothing to learn if a better system can be developed for your office procedures. Call or write the Moore man—he's in the telephone directory.

MOORE BUSINESS FORMS Inc

78TH ANNIVERSARY MOORE

Over 300 offices and factories across the U.S. and Canada, Mexico, Caribbean and Central America

For More Information Write No. 246 on Inquiry Card—Page 32

TENSION ENVELOPES • TENSION ENVELOPES
Give your mailing personnel
faster fingers!
TENSION
KWIK-KLASP
ENVELOPES!
Cut closure time as much as 33⅓%
Sure! Employees do work faster with these new metal clasp envelopes. And for two good reasons.
First, fingers never touch the metal. No need to go slowly because of tender fingers. No fear of broken nails.
Second, closing the envelope is so wonderfully easy. Nothing to do but slide flap into place. The rest is automatic. The clasp is self-acting and fastens flap on contact. No pressing. No bending. No turning. No twisting.
WRITE FOR FREE SAMPLES
Kwik-Klasp actually is so simple and easy to use that it cuts closure time over ordinary methods by as much as ⅓. Think what this means in greater mailing efficiency—in time and money saved on small and medium mailings. Mail coupon for free samples and full information.
Tension Envelope Corporation
817 East 19th Street
Kansas City 8, Missouri
Please send free samples of Tension Kwik-Klasp envelopes—also prices and complete information.
Name Title
Company
Address
City Zone State
344
For More Information Write No. 247 on Inquiry Card—Page 32

Office Equipment

Designed for the coffee break, is the **Kelvinator Hot 'N Cold Water Cooler,** manufactured by the **Ebco Manufacturing Co., Columbus 13, Ohio.** This bottle-type model is available with a refrigerated compartment. In addition to furnishing piping hot water for instant beverages, and cool water for drinking, it has a refrigerated compartment for storage of bottled drinks, packed lunches, and practically anything that requires refrigeration. It will freeze and keep two full trays of ice cubes. The model shown can be equipped with cup and beverage dispensers which are optional accessories at slight extra charge. The Kelvinator series also includes a pressure-type hot 'n cold water cooler.

Write No. 54 on Inquiry Card—Page 32

A new line of unitized, modular-construction, larger packholding capacity **carbon and forms separators,** which may be used independently or in direct conjunction with tabulating equipment and computer output is now available from **The Standard Register Company, Dayton, Ohio.** Utilizing standardized parts, the new separators, using both friction and pinfeed, make available a variety of units to process continuous forms after they have been run over any type of office machine. The component parts are designed so that any specific assembly can be packed and shipped in kit form to a point of installation.

Write No. 56 on Inquiry Card—Page 32

An eight-page **brochure** describing XeroX Copying Equipment was recently published by **The Haloid Company, Rochester, New York.** The brochure illustrates and explains fully the xerographic copying process and the use of each piece of equipment. A list of every-day uses and general duplicating requirements is included, suggesting improved means of cutting costs and speed-

Write No. 55 on Inquiry Card—Page 32

PLEASE USE READER-SERVICE CARD ON PAGE 32

"For Building Business . . ." The Elbe File & Binder Co., Inc., Fall River, Mass., published an all-new, 116 page, loose-leaf & sales presentation catalog. It lists over 1500 stock items and hundreds of made-to-order binders. The features: 1. An exclusive loose-leaf planning section; 2. Helpful idea sections for increasing office and sales efficiency; 3. Special sections dealing with sales tools, custom-made products, advertising specialties, business gifts, and visual aids; 4. Dozens of all-new stock lines and advanced styles.

For More Information Write No. 250 on Inquiry Card—Page 32

"National Accounting machines save us $116,400 a year... return 90% on our investment!" —MORRISON-KNUDSEN COMPANY, INC., Boise, Idaho

"Our heavy construction and engineering business is international in scope, employing more than 40,000 people. We have placed 32 National Accounting machines on field construction projects, and in our home office and branch offices.

"The machines are used for accounts payable, payrolls, processing earnings records, preparing Federal and State reports, writing W-2's, and posting detail cost ledgers.

"The flexibility of these Nationals permits switching quickly from one job to another, thus increasing the utility of these machines. We also appreciate their rugged construction and the minimum of service required, as most of our jobs are located in isolated areas many hours from National Service offices. And the simple operation and programming of these machines is advantageous in training personnel quickly to use these machines on relatively short-term field jobs.

"We estimate that these National Accounting machines save us $116,400 a year, a 90% annual return on our investment."

Norman Joiner

Controller, Morrison-Knudsen Co., Inc., Boise, Idaho

In your business, too, National machines will pay for themselves with the money they save, then continue savings as annual profit. Your nearby National man will gladly show how much you can save—and why your operators will be happier. He's listed in the yellow pages of your phone book.

*TRADE MARK REG. U. S. PAT. OFF.

National

ACCOUNTING MACHINES
ADDING MACHINES • CASH REGISTERS
NCR PAPER (NO CARBON REQUIRED)

THE NATIONAL CASH REGISTER COMPANY, DAYTON 9, OHIO
989 OFFICES IN 94 COUNTRIES

For More Information Write No. 248 on Inquiry Card—Page 32

Office Equipment

A machine that automatically prints enlargements from microfilm files in less than ten seconds has been announced by the **Duplicating Products division of Minnesota Mining and Manufacturing Co., St. Paul, Minn.** Called the 3M brand microfilm reader-printer, the machine is both a reader and a printer in a single unit. As a completely automatic printer, it eliminates hand-processing of prints. It projects microfilm on a viewing screen in the usual manner for reading—then makes a ready-to-use print in less than ten seconds when a button is pressed. A major problem in using microfilm for "active files" is solved by the speed and simplicity of automatic printing—the problem of making copies from files quickly and easily when needed.

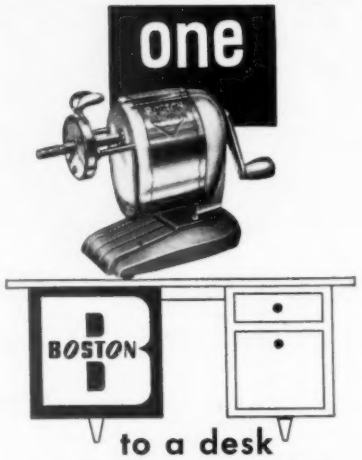
Write No. 57 on Inquiry Card—Page 32

The **Friden Calculating Machine Co. of San Leandro, California** announced recently the development of a new machine for sending, receiving and checking data encoded in more than five channels of punched paper tape over existing wire services. The new machine, designated as the **Friden Teledata** has the ability to transmit a greater number of code combinations, as well as to check the accuracy of transmission, over any commercial telegraph channel. The new unit is capable of transmitting and receiving five, six, seven and eight channel tapes. Two or more units are stationed at different locations providing a means for immediate communications.

Write No. 58 on Inquiry Card—Page 32

Olivetti Corporation of America, New York has introduced a completely automatic high-speed **accounting machine,** with two registers, a typewriter keyboard, and a number of other features. Called the Audit 302, the machine has four separate accounting programs or sequences continuously and instantly available through an electrified program selector located on the keyboard. The transition from posting to typing, and vice versa, can be done at will, without setting any controls. At any time in any program, the Audit 302 is ready either to type or to post.

Write No. 59 on Inquiry Card—Page 32



to a desk

speeds efficiency—ups morale

BOSTON CHAMPION

PORTABLE PENCIL SHARPENER

now in decorative green, blue, sand-tone, and gray colors

- sharpen pencils at desk—fast—no more sharpener searches
- saves much more in time and efficiency than actual cost in brief period
- a low-cost quality item that helps desk workers feel more important

Send for free comprehensive report on sharpeners, Booklet T.

C. HOWARD HUNT PEN CO., Camden 1, N.J.

BOSTON PENCIL SHARPENERS

For More Information Write No. 249 on Inquiry Card—Page 32

CHANGES

When you change your address . . . your title . . . your company . . . please notify us without delay. We like to keep our stencils up to date to assure the correct addressing of your copies of PURCHASING Magazine. In requesting any change be sure to include the old information as well as the new.

For More Information Write No. 251 on Inquiry Card—Page 32→

it's easy
to recognize
superior
quality
brass and
aluminum
bearing this
trademark
identification

made better
to bring out the
best in your
fabricated products

SCOVILL

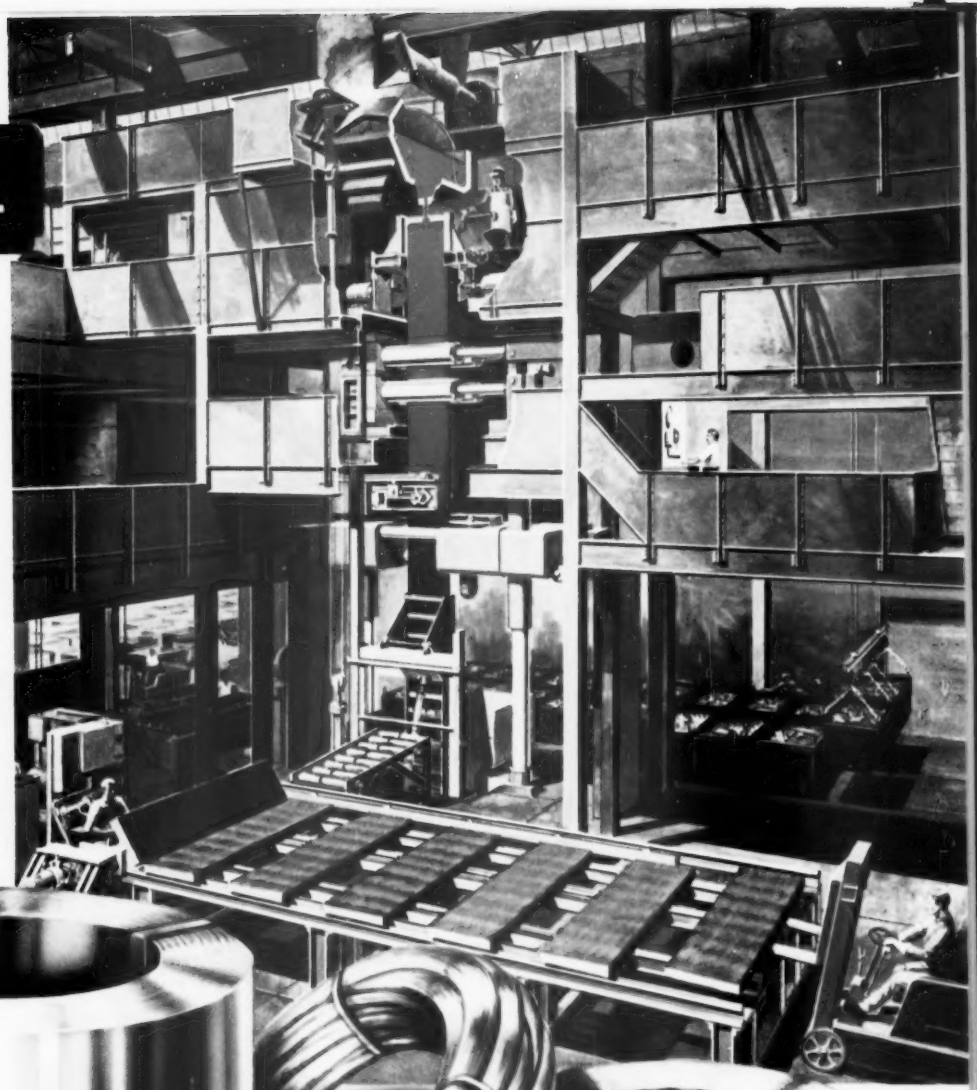
SCOVILL MANUFACTURING COMPANY
MILL PRODUCTS DIVISION
99 MILL ST., WATERBURY 20, CONN.
PHONE PLAZA 4-1171

SCOVILL

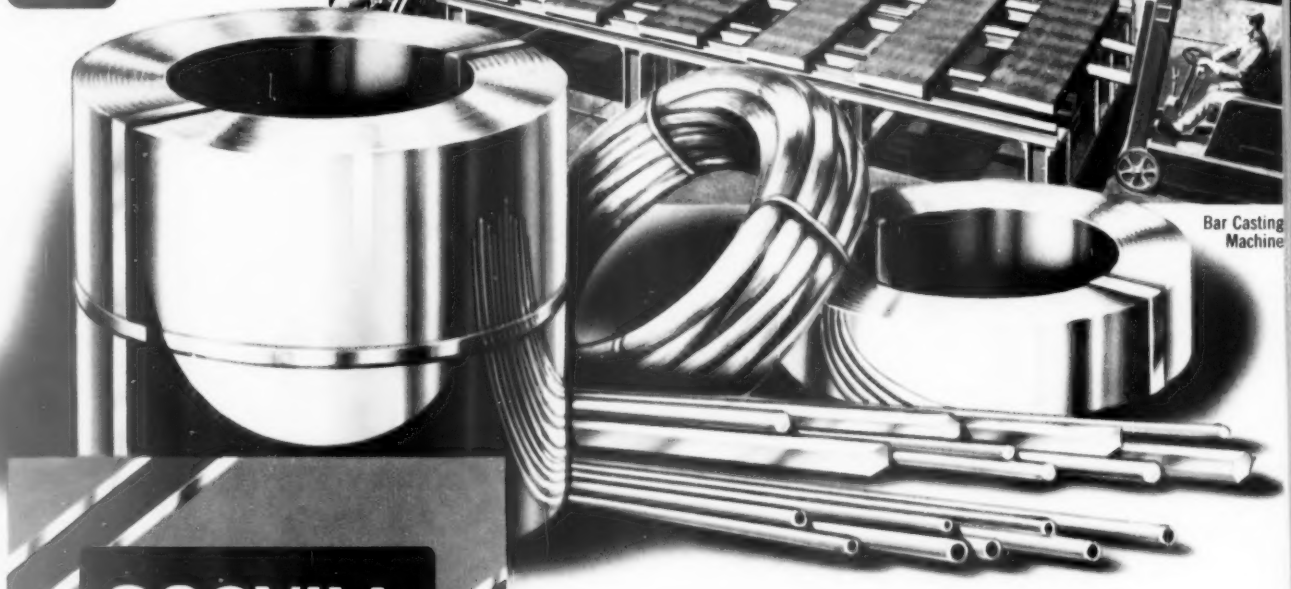
Continuous-cast Brass

means
soundness
uniformity
superior quality
maintained order
after order... and
lot after lot.

MADE IN U.S.A.
TO THE STANDARDS
OF AMERICAN INDUSTRY
★★★★★★★



Bar Casting Machine



bring out the BEST in your fabricated products

SCOVILL BRASS MILL PRODUCTS

Scovill Continuous Casting Machines have produced, from 1938 through 1956, over 1700 miles of inherently SOUND and perfectly UNIFORM metal in billets for hot extrusion into rod, wire and tube, and bars for cold-rolling into strip and sheet. Never before has mass production of copper-base alloys been maintained to such closely controlled standards . . . an achievement resulting in BRASS MILL PRODUCTS of a quality second to none.

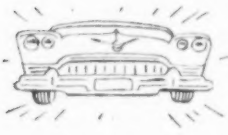
5SC57

Scovill Manufacturing Company, Mill Products Division, 99 Mill Street, Waterbury 20, Connecticut. Phone Plaza 4-1171.

Any similarity to a real-life company is purely intentional

How did they use their beans in Boston to cut forming rejects?

A couple of years ago, Otto Motive, super sales engineer of East Boston, Mass., began to eye a new prospect.



Thought he, "As an account, that Supercrate V-8 looks great. They buy a lot of parts. It sure would be peachy—and profitable—to land that plum!"

And, by golly, Otto did get a contract — to furnish wire-wheel units of 25-gauge stainless.

He also got *more* than he bargained for. Sleepless nights, for example. Because — though tempus fugited, production of the wire-wheel units didn't.

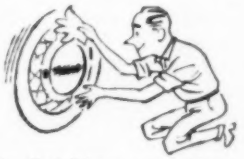
It seems that the boys in Otto's shop had trouble forming the hub-cap sections of the units. The stainless scored in the die. Rejects piled up. The scrap pile became something to behold. Delayed delivery dates caused delirium.

Then someone suggested trying dies made from Ampco Metal Grade 24 (a just cause for a raise, if we've ever heard of one!).

Rejects dropped off to practically nothing. Which is no surprise to us. Dies made from Ampco Metal have done as much for many a shop drawing or forming stainless or other clean metals—have made possible real savings.

And they can do as much for *you*. You can count on that!

Ampco Metal dies have an exceptionally low coefficient of friction. They don't load, gall, or scratch the work. They hold close tolerances longer.



You make a better product with fewer costly finishing operations. You cut scrap loss.

You reduce downtime, also. Ampco Metal dies have little or no pickup — you get far longer runs than with steel dies without redressing.

An Ampco stocking distributor near you carries 70 sizes of Ampco Metal die blanks — solid rounds, rectangles, and centrifugually cast rings. Call him.

AMPCO®

If you don't know who your Ampco distributor is, write us for his name. *Ampco Metal, Inc., Dept. P-1, Milwaukee 46, Wisconsin. (West Coast Plant: Burbank, California).*

AMPCO METAL

The metal without an equal

AM-6

For More Information Write No. 252 on Inquiry Card—Page 32

Scovill Manufacturing Company, Mill Products Division, 99 Mill Street, Waterbury 20, Connecticut. Phone Plaza 4-1171.

Association News

Milwaukee's Newest Educational Experiment

THE MILWAUKEE Association of Purchasing Agents recently sponsored its first purchasing conference. During what is generally considered as the "most significant activity of the year", members and guests heard speakers who are specialists in their subjects, and participated in a panel discussion on a variety of subjects, well integrated with the general theme, "Paring Costs For Profits."

George A. Renard of the Journal of Commerce, presented an inspiring and thought-provoking message covering purchasing as a top management function, the future of purchasing, and helpful suggestions in the art of economic forecasting.

Stressing the importance that purchasing now has in top management, Mr. Renard outlined the broad functions and responsibilities of purchasing in justifying the confidence of management and suppliers. Expanding on the idea that management is interested in performance, not conformance, he said that the purchasing man must be innately curious, and always alert to take advantage of new ideas, to develop automation to reduce costs of standard procedures and functions. At the same time, he warned against confusing the importance of common sense with automation or mechanization. "Qualifications for decision-making," said Mr. Renard, "will never be mechanized."

In discussing the intricacies of proper forecasting, Mr. Renard said that all indicators, not just local indicators are essential, and that a sense of timing is of the utmost importance.

Frank B. Newbert, general purchasing agent, American Brake Shoe Company, described the problems of developing a purchasing manual, one of the most unglorious, but at the same time most helpful tasks that a purchasing agent can undertake to enlighten purchasing department personnel and management on the importance of the function of purchasing.

"How to Put Across Your Ideas" was the subject of a presentation by William McCaskill, training director, Worrell-Consolidated Labs, of Madison, Wisconsin. In a humorous and stimulating talk, Mr. McCaskill described what he considered the five basic personality types, and how to deal with each in selling your ideas.

After a five-minute presentation by each of the four members of the panel, an open discussion brought out helpful ideas of panelists and audience on paring costs for profit. Guest moderator for the panel was Gilbert L. Hartmann, former purchasing agent and now president of Milwaukee Faucets, Inc.

A dramatic and fast-moving talk highlighted the end of the conference. Mr. J. Roger Deas, a representative of American Can Co.'s executive office in New York, kept the conference spellbound as he described historical and political events which have helped make the country what we are today.

William McCaskill, training director of Worrell-Consolidated Labs. of Madison, Wisconsin, tells the conference "How to Put Across Your Ideas."

Jack T. Clancy, president, Milwaukee Association of Purchasing Agents greets the members and guests attending the conference. An extremely large group gathered for what many considered the most significant activity of the year.

Frank B. Newbert, general purchasing agent, American Brake Shoe, New York told the group of the "Development of a Purchasing Manual."

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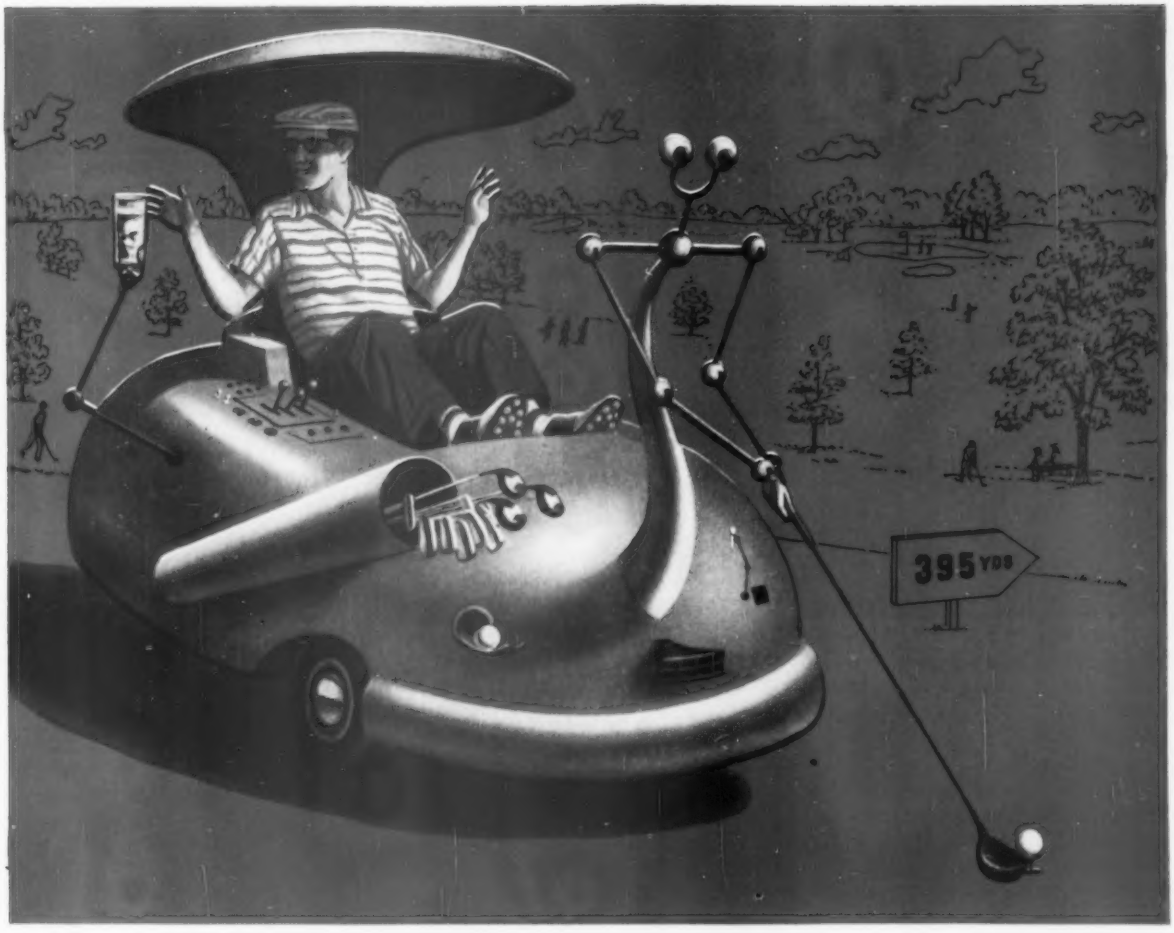

No matter what you make from cold rolled steel

An ALAN WOOD Representative can help!

Designed for the golfer who likes to goof . . . off. But before you produce the "Golf-Master", you had better find out about cold rolled steel from your A.W. Representative. He is the man to see in every case! Your A.W. Representative may order a metallurgical study of your problems and bring about savings that build new profits and greater potential. He can provide you with the latest information on cold rolled steel and its application, plus experienced advice on the gauge, size and type to order. Call him today. Your A.W. Representative is always available . . . never out of touch with your location.

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IRON PRODUCTS
"Swede" *pig iron*

STEEL PRODUCTS
Plates (sheared)
A.W. Dynalloy (high strength steel)
Hot rolled sheets
Hot rolled strip
Cold rolled sheets
Cold rolled strip

ROLLED STEEL FLOOR PLATE
A.W. ALGRIP *abrasive*
A.W. SUPER-DIAMOND *pattern*

COAL CHEMICALS

A.W. CUT NAILS
Standard & Hardened

MINE PRODUCTS
Iron ore concentrates
Iron powder
Crushed stone
Sand

COKE
Foundry, industrial & metallurgical

PENCO METAL PRODUCTS DIVISION
Steel cabinets, lockers & shelving

For More Information Write No. 253 on Inquiry Card—Page 32

Association News

North Jersey P.A.'s Told:

"It's a Buyers Market"

AT A recent meeting of the Purchasing Agents Association of North Jersey the featured speaker was J. M. Wallace, manager of the Westinghouse Meter Division. Mr. Wallace's topic was, "Purchasing Is a Service."

After reviewing the advance of the buying profession from the depression years, Mr. Wallace reminded his audience that "the reason for this change is simply that the economy went from a buyers to a sellers market." During the depression years purchasing was much simpler. The sellers worked hard to get orders.

"Suddenly, all of this was changed, businesses which had a relatively poor or under-staffed buying organization found that they were unable to get material.

"The best men were now required in the purchasing organization—in fact, the purchasing agent was now a salesman in that he was trying to sell the former salesman on allotting him materials."

Mr. Wallace continued, "As a net result—we find an upgrading of purchasing organizations with better men, higher salaries and with a new prestige . . . . the situation has reversed and we are back in a buyers market."

Purchasing people must further their efforts, declared Mr. Wallace, in order to maintain and improve their stature in business through the service they can render to their organizations.

Courtesy of North Jersey

J. M. Wallace

"We must remember that in a business organization there is no intrinsic value in any service. No department or function operates for the sake of itself . . . . we don't run the organization for anything other than the objectives of the organization itself.

"The simplest and most direct way for purchasing people to maintain the stature they have earned, and to improve it is to look at the business manager's situation and try to interpret all the problems that come up, in the light of what would the boss do if he were in this job.

"The purchasing agent who can understand his boss' viewpoints and responsibilities, will be best able to figure out how his department can take its place on the business team and make the most contribution or do the best job of furnishing service to the organization . . . the basic function of a purchasing department is to be of service to all the rest of the business team. The more the economy moves to a buyers market, the more it will be necessary of you purchasing people to utilize this philosphy, and the better job you will be able to do, of earning the recognition which I hope you will continue to deserve."

Purchasing Conference

On January 16, 1958 the Rutgers University Extension Division, with the full cooperation of the Purchasing Agents Association of North Jersey will hold an all day conference for purchasing agents in an effort to help answer such questions as: Is the buyer ready to face the challenge in the new buyer-seller relationship? How would you rate yourself today? Can you deal skillfully with the salesman, your clerk, your superior or the other departments?

The theme of the conference will be "Changing Times in Purchasing." The plans for the conference were laid at an early fall meeting with J. S. Babiy of Permacel Tape Corporation, New Brunswick; H. Ziobro of Rutgers University Extension Division; T. Kopacki, Autographic Business Forms, Inc. and President Rube Atkins of the Resistoflex Corporation. The conference is expected to start at 9:00 a.m. and end about 4:30 p.m.

For More Information Write No. 253 on Inquiry Card—Page 32

Choose the combination that's just right for you

. . . in a Bristol Brass Alloy for your Product

A *harmonious* combination . . . one that's exactly suited to your manufacturing, marketing, and even your *color* requirements . . . that's what you get in Bristol Brass. For here, past masters of the art of Brass blending never stop trying to adjust the original specifications of every customer's alloy more closely to its use. Net result — you get a Brass that bears your own special trademark, *but at the standard price.*

And speaking of price, it's been years since the unmatched advantages of Brass could be bought at such attractive levels as today's. *So get on the solid Brass standard.* Let us show you what Bristol Brass strip, rod and wire can do to give *your* product a lift, both in manufacturing and sales. Call Ludlow 2-3161, and ask for a sales engineer.

The **BRISTOL BRASS**
CORPORATION

Since 1850, makers of Brass strip, rod and wire in Bristol, Conn. (Now also the home of ACCURATE BRASS CORP. (Subsidiary), producers of Fine Forgings.)

Bristol Brass has offices and warehouses in Boston, Buffalo, Chicago, Cleveland, Dayton, Detroit, Milwaukee, New York, Philadelphia, Pittsburgh, Rochester, Syracuse.

For More Information Write No. 254 on Inquiry Card—Page 32
For More Information Write No. 255 on Inquiry Card—Page 32→

NOW...AUTOMATED TESTING OF G

ABOVE: operator inserts a GL-6807 thyratron in rotating mechanism that carries all tubes automatically through an extensive series of performance checks.

LEFT: full-scale view of G.E.'s automated test equipment for thyratrons—the only one of its kind. Racked tubes ready for testing are at operator's right. Among the important checks that G-E thyratrons receive are tests for heater current; for peak anode voltage; peak cathode current; grid emission; and tube control characteristics. These and many other tests, automatically and infallibly applied to every tube, mean proved-in-advance performance for all General Electric thyratrons.

To fully proved performance, add these G-E tube-design plusses that give you better thyratron performance, longer life:

CONTROLLED MERCURY CONTENT. The closely controlled mercury content in G-E mercury-filled thyratrons means that (1) initial mercury distribution time is cut down, (2) tubes can be mounted with greater freedom. A special capsule is flashed inside G-E tubes after the latter have been exhausted, providing correct amount of mercury, with no excess.

NEW LONG-LIFE BASING COMPOUND. A new, superior epoxy-resin compound for bases and anode caps adds greatly to G-E thyratron life. This compound is "predictable" when applied—has a minimum tendency to weaken or deteriorate. Bases and anode caps stay in place.

SUPERIOR CATHODE COATING. General Electric's unique method of cathode processing gives superior adherence to the coating of the cathode; helps prevent flaking off. Increased tube life—better thyratron performance—both are direct results of the G-E method.

NEWEST TYPES AVAILABLE. New types—new improvements—constantly are being added to General Electric's line of thyratrons, long the industry's largest. Important recent new tubes are the GL-6807, 8, and 9 thyratrons for motor control, with external anode and grid cooling. First to develop and build thyratrons, General Electric continues to maintain design leadership

GENERAL ELECTRIC THYRATRONS!

Performance of tubes is fully proved before you install them

Automated testing of G-E thyratrons—described at left—means proved-in-advance performance. This General Electric "first" solidly protects your tube investment. Your dollars buy pre-tested quality when you replace with General Electric thyratrons . . . and 46 types give full coverage of your factory requirements. Check the thyratron replacement list that follows; then phone your local G-E tube distributor for fast delivery service to your door! *Distributor Sales, Electronic Components Division, General Electric Company, Owensboro, Kentucky.*

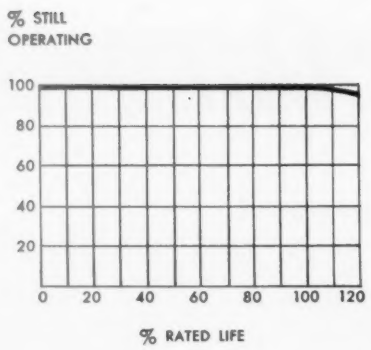
Use this guide to fill ALL your replacement needs with G-E Quality Thyratrons:

G-E THYRATRON	WILL REPLACE:
2D21	WL-2D21 2D21, other makes WT-210-0001
GL-3C23	NL-3C23 WL-3C23 3C23, other makes CE-311
GL-5C21/C6J	C6J C6J/5C21
FG-27-A	
FG-81-A	WL-81-A
FG-97	
FG-98-A	FG-98-A, other makes
FG-105	WL-105 105, other makes AX-105/FG-105 WT-210-0079
FG-154	
FG-172	WL-172 172, other makes WT-T149 WT-210-0038 WT-210-0078
GL-393-A	NL-393-A WT-210-0067
GL-414	WL-414
502-A	WL-502-A 502-A, other makes
GL-627	KU-627 627, other makes
GL-672-A	WL-672-A 672-A, other makes 672
GL-678	WL-678 678, other makes
884	DR-884 RX-884 WL-884 884, other makes 6Q5-G WT-210-0003
885	RX-885 WL-885 885, other makes 2B4
2050	RK-2050 WL-2050 2050, other makes WL-630 WL-630-A WT-210-0004
GL-5528/C6L	C6L
GL-5544	5544, other makes
GL-5557/FG-17	WL-17 17 CE-309 NL-715 NL-715/5557 ML-728 UE-967 967 1701 5557 WL-5557/17 AX-5557/FG-17/1701 WT-210-0015 WT-210-0062 WT-210-0069
GL-5559/FG-57	AX-5559 5559 NL-5559/FG-57 WL-5559/57 WL-57 WL-631 WT-210-0056
GL-5560/FG-95	NL-5560/FG-95 5560 WL-632-B (certain design differences) WT-210-0057 WT-210-0116
GL-5632/C3J	C3J/5632 EL-C3J 5632 WT/210-0043 WT/210-0106
5662	
5663	
GL-5665/C16J	C16J/5665 EL-C16J 5665
5696	5696, other makes
GL-5720/FG-33	NL-5720/FG33 WL-33
5727	WT-210-0077
GL-5728/FG-67	5728/FG-67, other makes 1904
GL-5830/FG-41	WL-41 WT-210-0054
GL-5855	
GL-5948	5948, other makes 5948/1754 1754
GL-6011/710	WL-6011/710 GL-5632/C3J NL-710 NL-710/6011
GL-6014/C1K	6014 EL-C1K C1K/6014
GL-6044	
6525	
GL-6807	C6J-A/5685 EL-C6J EL-C6J/A EL-C6J/K NL-760 WT-210-0063 WL-5685/C6JA
GL-6808	EL-C6J/F EL-C6J/KF NL-760-P
GL-6809	EL-C6J/KL EL-C6J/L NL-760-L
GL-6855/716	NL-716
GL-6856/740	NL-740 WT-210-0017
GL-6857/740-P	NL-740-P
GL-6860/C6J/F	C6J/F

Progress Is Our Most Important Product

GENERAL ELECTRIC

161-1D8



If you want reliable transformers

..don't overlook this old solution

Right now, you demand more from transformers than ever before. You must have high reliability, even at extreme altitudes, and you need smaller lighter units.

Used, and *proved*, for decades, oil-encased transformers should not be forgotten in a search for new methods.

Everyone knows the advantages: effective convection of heat, excellent insulating properties, complete insurance against hidden leaks. Oil-*sealed* types (with a nitrogen bubble) are good, light, high-altitude transformers. Gas-free oil-*filled* types (with a bellows to allow for heat expansion) withstand very high voltage stresses. Except in the smallest sizes, they save space, too.

You can place several high voltage units close together in a single oil-filled case, and save case weight. Those connections moved inside the case no longer need large insulators. Even the units themselves can be smaller. This all adds up—particularly in high altitude service—to interesting savings in space and weight.

We make all sorts of transformers and special assemblies for the communication industry: encapsulated, cast in epoxy or foam, and just potted in pitch. But oil transformers still have an important place.

Whatever type you need, we'll be glad to hear from you. Our facilities in design, production, and quality control are at your service. Our experience, too.

CALEDONIA
ELECTRONICS AND TRANSFORMER CORPORATION

Dept. P-1, Caledonia, N. Y.

In Canada: Hackbusch Electronics, Ltd.
23 Primrose Ave., Toronto 4, Ontario

For More Information Write No. 256
on Inquiry Card—Page 32

Association News

3rd District Educational Group Meets

The Rock River Valley Association of Purchasing Agents were hosts to a one-day educational clinic. Guests attending the meeting were educational chairmen of the twelve associations that comprise the Third District of the National Association of Purchasing Agents which is the largest in membership and territory.

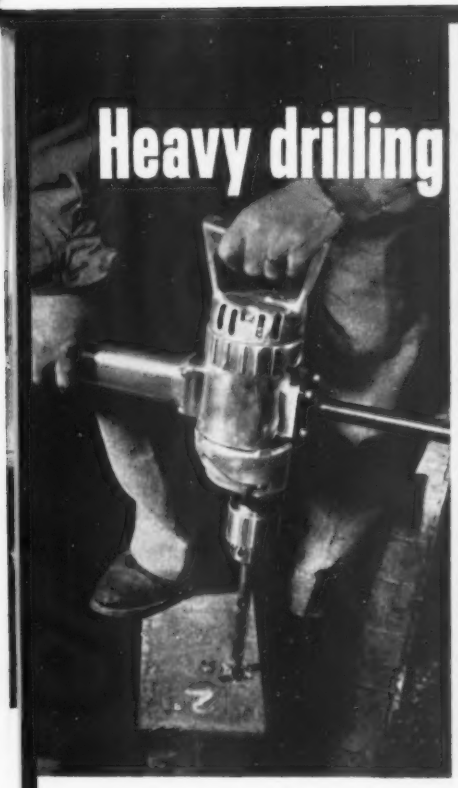
Gelen Andrews, Third District chairman conducted the meeting at which Harold Berry, national educational chairman appeared. The purpose of the clinic was to give planned advice and assistance on educational matters within various local associations.

The Rock River Valley Association and Rockford Evening College offered a course in "Purchasing in Business and Industry." This was the first time such a course has been available in Rockford. Thomas C. Hand, a member of the Rock River Valley Association and purchasing agent at Sundstrand Magnetic Pneumatic Products Company was the instructor for the course.

EDUCATION COMMITTEE CHAIRMEN—(standing L. to R.) Charles Grayson, John Wright, Hugh Barnes, George Mosher, John Eppright, Tom Hand, Wilsey Whitcomb, and (seated) Bud Manning, Harold Berry, Gale Andrews, Bill Stevenson, Howell Pritchard and Al Moffet.

ROCHESTER OFFICERS AND DIRECTORS—(Standing from left to right) Robert A. Copeland, Jr., Joseph A. Ehrstein, Edwin A. Galen, Garrett P. Smith, William T. Naylon, Warren R. Barton, John W. Averill, and (seated) James W. Conklin, Edwin H. Stiffler, president, Donald S. Judd, and George E. Lotspike.

For More Information Write No. 257
on Inquiry Card—Page 32→



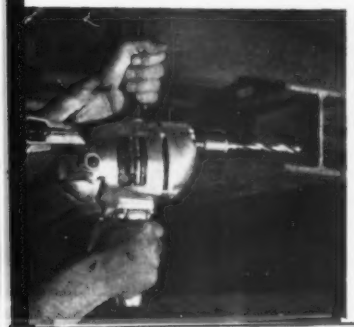
There's a Black & Decker Drill powered for every job!

LITTLE SHORTY'S the drill you want for those hard-to-get-to, around-corner jobs. Gets in tight spots! Excellent for small unit assembly.

DRILLS UPSIDE DOWN! B&D Magnetic Drill Press sticks to the wall, like a fly; operates manually or with exclusive remote control.

TREMENDOUS TORQUE for the tough jobs. $\frac{3}{8}$" Heavy-Duty Drill is geared and powered to take on the hard ones. Compact to work in close quarters.

MOST POWERFUL drill of its size available, the $\frac{3}{4}$" Standard! A rugged tool with plenty of zip in reserve. Fully reversible; positive drive clutch.



71% of purchasing agents say make mine Black & Decker!

A recent industrial publishing company survey reveals that when purchasing agents need electric tools most think first of Black & Decker! One reason why: 33 *different* drills each designed to give you the power you need *plus* easy handling and long, troublefree life!

If you have a drill problem, be sure to look to Black & Decker. See us at the *Plant Maintenance Show* or better yet, mail the coupon below for a free demonstration. THE BLACK & DECKER MFG. CO., Dept. 1701, Towson 4, Maryland (In Canada: P. O. Box 278, Brockville, Ontario).

Look Under TOOLS-ELECTRIC in Yellow Pages

Leading Distributors Everywhere Sell

B&D Black & Decker®

Quality Electric Tools . . . Power-built for top performance

MAIL COUPON FOR FREE DEMONSTRATION

THE BLACK & DECKER MFG. CO., Dept. 1701, Towson 4, Md.

☐ Please arrange for a demonstration of the following drill(s) .....

☐ Please send me additional information.

Name.....Title.....

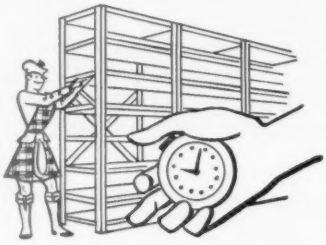
Company.....

Address.....

City.....Zone.....State.....

BORROUGHS STEEL SHELVING

THE "Number 1" shelving value because it is the fastest erected shelving on the market, and no other shelving offers more money-saving features!



shelf bracket . . . worth its weight in gold!

It's the Borroughs shelf support bracket that makes Borroughs Steel Shelving the most versatile and most adjustable on the market.

saves erection time

Fewer parts . . . no fumbling with studs, tricky locks, bolts, nuts or lock washers

saves time rearranging shelves

No lost motion . . . you can change a shelf in seconds

Steel shelving is only steel until it is installed and ready for loading. Installation, rearranging of shelves and moving of units when desired are definitely a part of its original cost. Except for the top shelf (2 bolts and 2 nuts), no other bolts or nuts are required for Borroughs shelves. Each individual Borroughs unit is complete in itself. No part depends on unit next to it . . . any Borroughs unit can be moved independently.

send for catalog

BORROUGHS MANUFACTURING COMPANY OF KALAMAZOO

A SUBSIDIARY OF THE AMERICAN METAL PRODUCTS COMPANY OF DETROIT

3014 NORTH BURDICK amp® KALAMAZOO, MICHIGAN

For More Information Write No. 258 on Inquiry Card—Page 32

Association News

Dolls and Dollars At Milwaukee

The Annual Ladies' Night of the Milwaukee Association of Purchasing Agents was held recently at the Elks Club. The meeting was addressed by Miss Catherine B. Cleary, vice president of the First Wisconsin Trust Company and former assistant treasurer of the United States and assistant to the Secretary of the Treasury. Her interesting and humorous topic was "Dolls and Dollars."

Miss Cleary stated that the good wives were in reality part time purchasing agents and that their scope of operations was the entire world. She emphasized the influence which women are responsible for in the market place:

1. Purchases for themselves,
2. Purchasing influence on friends and relatives,
3. Responsible for some direct decisions on purchases.

They are responsible partners in spending the family income by participating in decisions of family purchases, savings and investments.

Miss Cleary urged that the wives should understand the financial basis of their security and that the era when husbands "protected" their wives by not telling them about the family finances was past.

Joint deliberations by husband and wife regarding retirement plan and plans for the children now and later should be practiced. The wife should be interested in who her husband's financial advisor is, the sources of his financial information and other factors which are reflected in the family's money decisions.

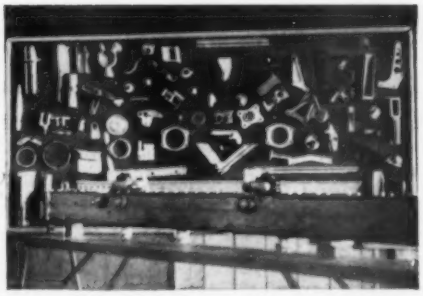
Miss Cleary called attention to recent tax legislation in regard to personal insurance and warned against the pitfalls of the usual joint ownership of savings and investments. She called attention to the procrastination of most people in drawing up a will and urged everyone to "do it today." All of these things, she stated, deserve as much attention as current purchases.

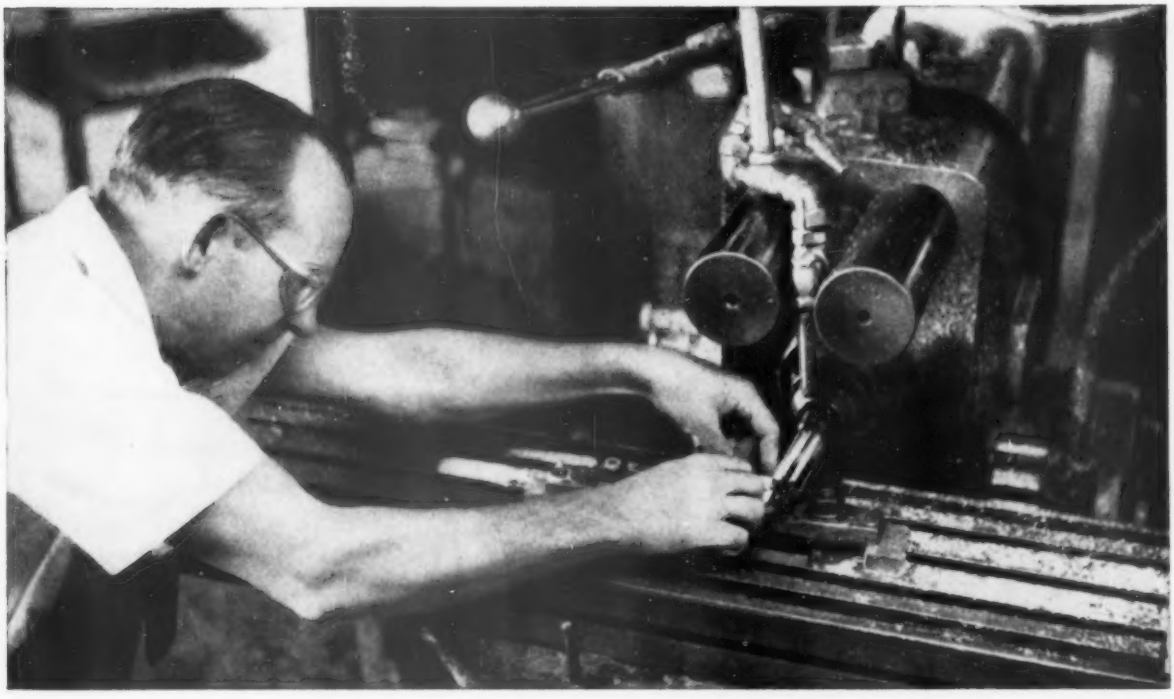
Address.....

City.....Zone.....State.....

◀ **Aerocycle,** a one-man helicopter now being tested by the U. S. Army, is one of the many aircraft for which Aeroaffiliates machines precision parts.

Some Examples of Aeroaffiliates' Work. ▶ All require fine tolerances and excellent finish. All were made with the help of Cities Service Chillo Cutting Oils.





"Fine Tolerances! Excellent Tool Life! With Cities Service Chillo Cutting Oil"

In probably no other machining operation are the tolerances so fine, the requirements so demanding as in aircraft work . . . especially when it's for the U. S. Army or Air Force.

But it is on such work that Aeroaffiliates, Inc. of Fort Worth, Texas, has become famous.

Every day, Aeroaffiliates employees must work with tolerances as fine as .0001, and their products must have an unusually good finish . . . so good that they are measured by a special gauge before the aircraft industry will accept them.

Obviously, this could play havoc with tool life . . . "but thanks to Cities Service Chillo Cutting Oils, tool life and finish are the best ever," says Aeroaffiliates. "These cutting oils are equalled only by the help we receive from the Cities Service Lubrication Engineer, a man whose knowledge and help we greatly value."

Whatever *your* type of machining operation, there's a Cities Service cutting oil tailored precisely for it . . . and a Cities Service Lubrication Engineer to help you choose it. Call him in this week. Or write: Cities Service Oil Company, Sixty Wall Tower, New York 5, N. Y.

CITIES SERVICE

QUALITY PETROLEUM PRODUCTS

For More Information Write No. 259 on Inquiry Card—Page 32

Another great new Acco achievement—

ACCOLOY KUPLEX Sling Chains

Speedy Sling Service with Engineered Safety

• The remarkable new ACCOLOY KUPLEX Sling Chain represents the successful culmination of years of intensive research and design by ACCO engineers. It gives further evidence of ACCO's steady progress in the design and manufacture of better goods... therefore better values ...for its customers.

No Other Sling Chain Is Like It

The ACCOLOY KUPLEX is unique. It is the first and only sling chain *completely engineered as a unit* that is quickly available from Authorized Distributors. Made up entirely of *matched and engineered components;* each part is designed and manufactured specifically for use with all the other parts of the complete KUPLEX Sling assembly.

All parts are made to ACCO Registered Specifications from heat-treated ACCOLOY steel, and are engineered to be as strong as the chain itself. All are *factory proof-tested* to twice working load limits.

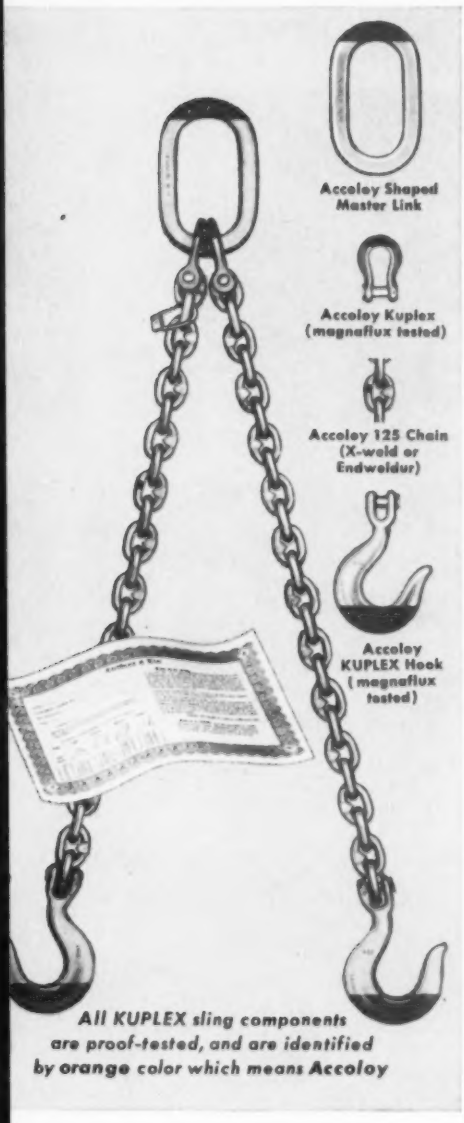
Maximum Strength and Safety

You have never seen—nor have your operators ever used—a stronger, safer sling than the new ACCOLOY KUPLEX. For here is the sling that *always gives a safe lift* to your valuable loads, thanks to the matchless engineering, manufacturing and testing care given each assembly before it reaches you.

Speedy Sling Service and Engineered Safety • An ACCOLOY KUPLEX sling gives you unquestioned and unvarying quality and strength. It gives you an assurance which is lacking when you use homemade slings of questionable reliability. It gives you new parts for worn or damaged slings without delay. Thanks to the fast service available through nearby distributors, you can be assured of having the sling you need when you need it. This also means that your inventory investment in sling chains can be held to a minimum.

• • •

You have much to gain by standardizing on ACCOLOY KUPLEX sling chains: unsurpassed strength and safety, convenience, ready availability—and long range economy.


Accoloy Shaped Master Link
Accoloy Kuplex (magnaflux tested)
Accoloy 125 Chain (X-weld or Endweldur)
Accoloy KUPLEX Hook (magnaflux tested)

All KUPLEX sling components are proof-tested, and are identified by orange color which means Accoloy

Why Acco means better values...

Our research, designing and manufacturing facilities are devoted to making Acco products "intentionally better" in on-job performance. Year after year, re-orders from our customers attest Acco's Better Values.

DIVERSIFIED PRODUCTS

ABRASIVE CUTTING WHEELS
Rubber and Resinoid Bonded
ALLISON DIVISION

BOLTS and NUTS • Lag Screws and Forgings
THE MARYLAND BOLT and NUT COMPANY

CASTINGS
Electric Furnace Steel and Iron • Malleable Castings
ACCO STEEL CASTING DIVISION
ACCO MALLEABLE CASTING DIVISION

CHAIN
Weed Tire Chains • Acco Registered Sling Chains
Welded and Weldless Chain and Attachments
AMERICAN CHAIN DIVISION

CUT-OFF MACHINES
Abrasive Cut-Off Machines • Nibbling Machines
CAMPBELL MACHINE DIVISION

CONTROLS
Tru-Lay Push-Pull Controls • Brake Controls
Aircraft Cable • Tru-Stop Brakes for Trucks and Buses
AUTOMOTIVE and AIRCRAFT DIVISION

GAGES • Pressure, Vacuum and Compound
HELICOID GAGE DIVISION

HARDNESS TESTERS • "Rockwell" and TUKON
WILSON MECHANICAL INSTRUMENT DIVISION

HOISTS and CRANES
Wright Chain Hoists • Electric Hoists • Cranes
WRIGHT HOIST DIVISION
Ford Chain Hoists • Electric Hoists • Trolleys
FORD CHAIN BLOCK DIVISION

INSTRUMENTS
Automatic Controls, Recorders, Telemeters, Socket Screws, Choppers and High-Speed Relays, Aircraft Pressure-Operated Devices
THE BRISTOL COMPANY

LAWN MOWERS
Rotary and Reel-type Power Mowers • Hand Mowers
PENNSYLVANIA LAWN MOWER DIVISION

VALVES • Bronze, Electric Furnace Iron and Cast Steel
R-P&C VALVE DIVISION

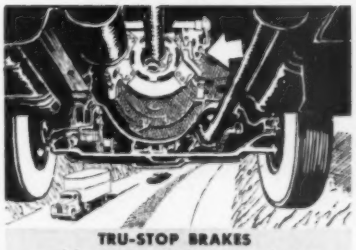
WIRE, FENCE, WELDING WIRE
Manufacturers Wire • Shaped Wire
Chain Link Fence • Welding Wire
PAGE STEEL and WIRE DIVISION

WIRE ROPE
Tru-Lay VHS Preformed Wire Rope • Tru-Loc Assemblies
Acco Registered Wire Rope Slings
AMERICAN CABLE DIVISION
Lay-Set VHS Preformed Wire Rope • Tru-Loc Assemblies
Acco Registered Wire Rope Slings
HAZARD WIRE ROPE DIVISION

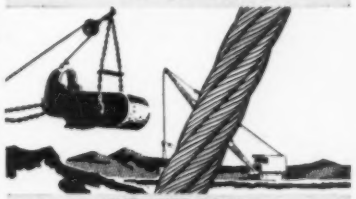
IN CANADA: DOMINION CHAIN COMPANY, LIMITED
Niagara Falls, Ontario
THE BRISTOL COMPANY OF CANADA LIMITED
Toronto, Ontario

IN ENGLAND: BRITISH WIRE PRODUCTS, LIMITED
THE PARSONS CHAIN COMPANY, LIMITED

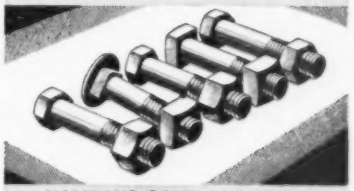
For example—



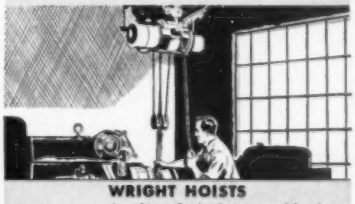
TRU-STOP BRAKES
—with the ventilated disc design for heat dissipation that has proved best for safety on trucks and buses, now find new applications—as on construction equipment.



VHS WIRE ROPE
VHS (for Very High Strength) Wire Rope is 15% stronger...is tougher ...lasts longer, size for size, under severe service.



MARYLAND BOLTS AND NUTS
A full line of bolts and nuts, ¼" to 3" diameter, all lengths. Many finishes. Facilities available for special fasteners.



WRIGHT HOISTS
SPEEDWAY electric hoists are ideal lifting units for loads from ¼ to 10 tons. Fully dependable. Easiest to service.

FAST, CONVENIENT SERVICE from Distributors' stocks

• A nearby Authorized ACCOLOY KUPLEX Sling Distributor can furnish promptly from his stock the exact sling chains you need for your specific requirements; made up from the components shown above. Six chain sizes (¼" through ⅞") are available in single-leg or double-leg styles.

CERTIFICATE OF TEST, issued by ACCO and signed by the distributor, is furnished with each sling shipment. The distributor can provide complete sling service or parts replacement without long and costly delays.

WRITE our YORK, PA., office for name of your nearest Authorized KUPLEX Sling Chain distributor.

For Information *on any ACCO product, address Market Development Department, American Chain & Cable Company, Inc., 929 Connecticut Avenue, Bridgeport, Connecticut*

American Chain & Cable Company, Inc.

ACCO

SALES OFFICES IN: Atlanta, Bridgeport, Conn., Boston, Chicago, Denver, Detroit, Exeter, Pa., Houston, Los Angeles, Monessen, Pa., New York, Philadelphia, Pittsburgh, Portland, Ore., Reading, Pa., San Francisco, Wichita, Kans., Wilkes-Barre, Pa., York, Pa.

For More Information Write No. 260 on Inquiry Card—Page 32

helps custodians where they need help most

Industrial washrooms need a program of penetrating cleanliness that kills bacteria, suppresses odors, removes drain build-ups, even discourages waste while encouraging good hygiene.

What's involved?

The three sensible steps of the West Protective Sanitation Program. An inexpensive way to help custodians where they need help most.

What does it include?

First, a scientific, heavy-duty cleaning of washroom facilities at regular intervals as traffic requires. This insures sanitary conditions. Cleans thoroughly. Destroys germs that cause T.B., Polio, Typhoid, Influenza and other diseases. Prevents drain clogging. And provides for continuous freshening of air.

Second, training for custodians so that they know how to maintain high standards of sanitation between heavy-duty cleanings.

Third, an analysis of washroom equipment that often leads to easier maintenance as well as savings in towels, soap and other supplies.

The West Protective Sanitation Program frequently prevents enough waste to pay for itself. Why not talk it over with a West Sanitation Specialist. Just write. Or call your local West office.

Programs and Specialties for Protective Sanitation and Preventive Maintenance

WEST CHEMICAL PRODUCTS INC.

WEST DISINFECTING DIVISION

WEST CHEMICAL PRODUCTS INC., 42-16 West Street, Long Island City 1, N. Y.
Branches in principal cities • In Canada: 5621-23 Casgrain Ave., Montreal

☐ Please send information on the West Protective Sanitation Program.
☐ Please have a West Representative telephone for an appointment.

Name_____

Position_____

Mail this coupon with your letterhead to Dept.

For More Information Write No. 261 on Inquiry Card—Page 32

Program Aids

To assist program chairmen in planning association meetings and company conferences, available film and other program aids will be listed in these columns from time to time.

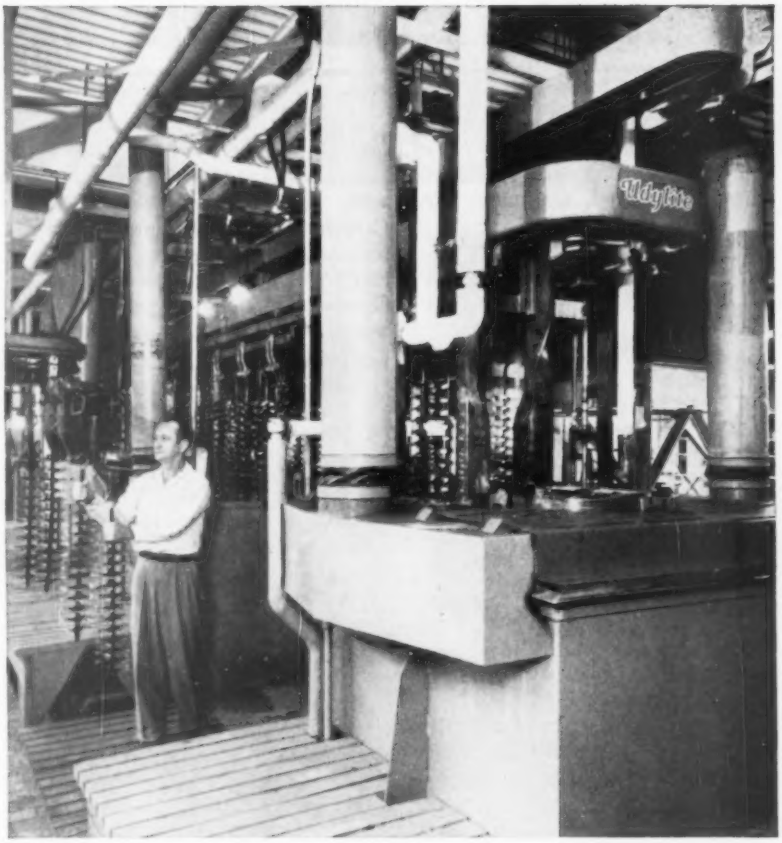
"Take-It-Away". A black and white, 16mm, sound film on how to handle loads safely and economically with slings. Running time: 20 minutes. Write to: Macwhyte Company, Public Relations Manager, Kenosha, Wisc.

"Portrait in Plastics". A 16mm, sound movie in color which tells the story of Eastman Kodak's early interest in plastics and its modern activities as a producer. Available from Plastics Division, Eastman Chemical Products, Inc., Kingsport, Tennessee.

"Be Wise-Palletize". The complete story of how a producer of oak flooring saved time, money and labor by power strapping bundles and palletizing these bundles into units. 16mm, sound. For reservations write Signode Steel Strapping Company, 2600 North Western Avenue, Film Dept., Chicago 47, Illinois.

"Making A Work Sampling Study". Management will find this film of value in better understanding some of the problems of management and the methods of solving them. 16mm, sound, color or black and white, Running time: 23 minutes. For sale only. Write to Lawrence Hatch, University of California, University Extension, Los Angeles 24, California.

"The Leading Role". A film on welded steel tubing, of special interest to buyers in all metalworking industries. 16mm, sound. Running time 25 minutes. Available from Formed Steel Tube Institute, 850 Hanna Bldg., Cleveland 15, Ohio.



Udylite Machine and Process combine to set new Scripto standards

The Udylite Cyclemaster provides the accuracy and steady flow of production. Udylite Bright Nickel furnishes the sparkling finish. Together they solve for Scripto, of Atlanta, Georgia, the knotty problem of better finish of the Scripto pens, pencils and cigarette lighters.

Scripto's first bright nickel was the Udylite #31 process. It was superseded by the Udylite #514 process to gain the faster brightening which is so important in nickel plating to a high luster with a thin coat.

The adoption of Udylite Bright Nickel Process #724 was the next step as it offered still faster brightening and even more important all the time saving advantages of all liquid brighteners.

Step by step Scripto has lowered costs and improved quality with Udylite Processes and Precision Automatic Plating. Here is just one of many examples of the right application of process and equipment. Out of the line of Udylite products can come the answer to your problem as well.

Contact your local Udylite Sales Representative . . . let him show you how the *right* combination of Udylite processes and machines can improve your quality and production.

THE Udylite CORPORATION DETROIT 11, MICHIGAN

WORLD'S LARGEST PLATING SUPPLIER

For More Information Write No. 262 on Inquiry Card—Page 32

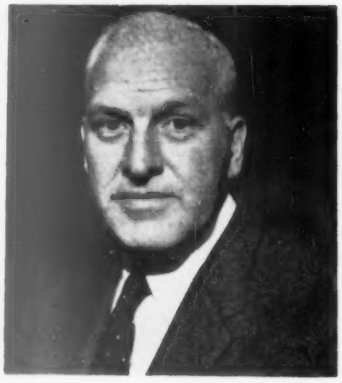
Purchasing People In The News

James A. Kyffin has been appointed director of purchases and traffic for the C. A. Norgren Company, Englewood, Colorado. Mr.

James A. Kyffin

Kyffin has been a buyer in the purchasing department of the firm for the past two years. Formerly he had been a special agent for the Federal Bureau of Investigation.

The election of **George F. Burley** as vice president of purchasing and traffic has been announced by Crane Co., Chicago, Illinois. The new vice president most recently was director of purchases for Warwick Manu-



George F. Burley

facturing Company, Chicago. His responsibilities there included direction of all traffic activities in addition to purchasing. Prior to that, he served as manager, raw materials purchasing at Hotpoint, Inc., Chicago. Mr. Burley began his business career in 1927 with the Hudson Motor Car Company, Detroit, and entered the purchasing field in 1936. He started as a buyer with the Budd Company and later was named assistant director of purchases for that organization. His experience also includes service as purchasing agent and production manager for Draper Motors, Detroit.

William F. Gates, director of purchases for Black, Sivalls & Bryson, Inc., Kansas City, Missouri, has been elected purchasing vice president. Mr. Gates has

William F. Gates

31 years of service with the company, starting out as purchasing agent at Oklahoma City in 1926. He was placed in charge of company-wide purchasing operation in 1932, and later moved to the company's general offices in Kansas City. He became director of purchases in 1950. Mr. Gates will serve in a staff capacity in his new position.

Crown Zellerbach Corporation has appointed **James O. Armstrong** divisional purchasing agent of Western-Waxide Division headquarters, San Leandro, California. He replaces John Plankinton who has been transferred to a plant in St. Louis.

The appointment of **E. Lee Clayton** to vice president of purchases has been announced by The Philip Carey Manufacturing

E. Lee Clayton

Company, of Lockland, Cincinnati, Ohio. In 1928, Mr. Clayton joined the company as purchasing agent. He has been director of purchasing at the Lockland general office since 1940. He is a former president of the Cincinnati Association of Purchasing Agents, and former national director and vice president, District 6 of N.A.P.A.

Chester F. Ogden has been elected vice president of purchases and real estate of Detroit Edison Company. A graduate of

Chester F. Ogden

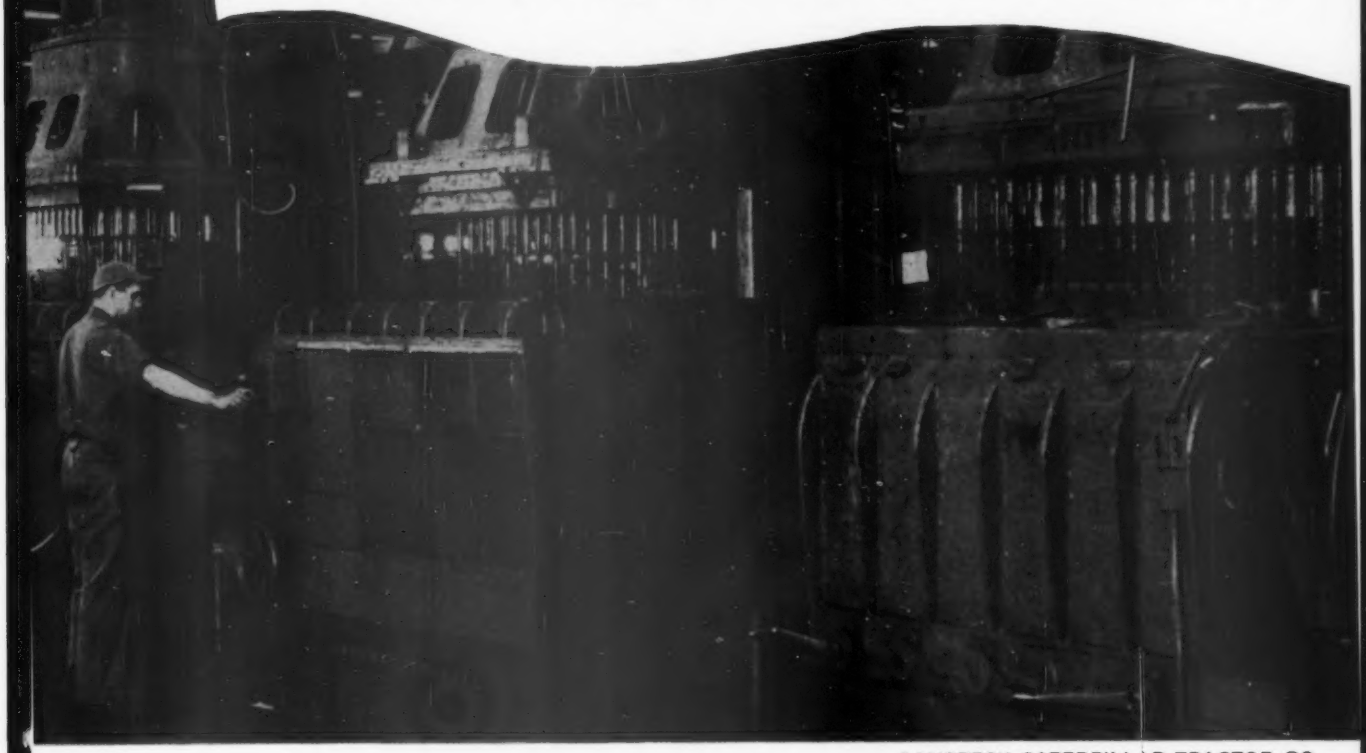
the University of Michigan in mechanical engineering and business administration, Mr. Ogden

(*Please turn to page* 174)

For More Information Write No. 263 on Inquiry Card—Page 32→

CHICAGO-LATROBE

helps put quality in Caterpillar machines

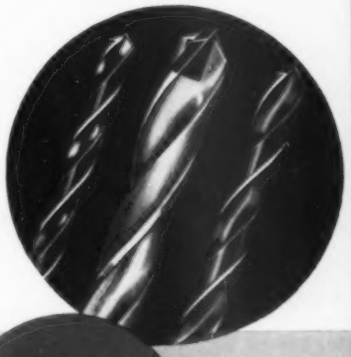


COURTESY CATERPILLAR TRACTOR CO.

Caterpillar products are noted for their superb performance under severe conditions. The very name Caterpillar brings forth the image of power and quality.

Chicago-Latrobe is proud to be a regular supplier of drills and reamers to this quality conscious company. Throughout the Caterpillar plants, Chicago-Latrobe products are doing their part to help produce finer machines.

Chicago-Latrobe drills and reamers will do better work in your plant, too. Use them regularly. And take advantage of the free counsel of a Chicago-Latrobe Service-Engineer. His specialized skill may save you time and money.



High Speed and Carbide Drills

INDUSTRIAL DISTRIBUTORS — SERVING INDUSTRY ECONOMICALLY — THE RIGHT HAND OF PRODUCTION

CHICAGO-LATROBE

412 W. Ontario Street, Chicago 10, Illinois

Order through your local C-L stocking distributor

DRILLS • REAMERS • END MILLS • COUNTERSINKS • COUNTERBORES • CARBIDE TOOLS

"...in boom times or in bad, we have the capacity to fill your orders or we don't take them!"

NEW REPUBLIC CAPACITY NOW PRODUCING AT

BUFFALO, N. Y.—increased bar output

CLEVELAND, OHIO—two new open hearth furnaces
—increased hot and cold rolled sheets

GADSDEN, ALABAMA—two new electric furnaces
—introducing cold rolled sheets, continuous galvanized sheets, corrugated and flat
—increased hot rolled sheets

WARREN, OHIO—two new electric furnaces
—increased cold rolled, silicon and galvanized sheets

CHICAGO, ILLINOIS—increased bars, rods, wire and seamless pipe
—enlarged three electric furnaces

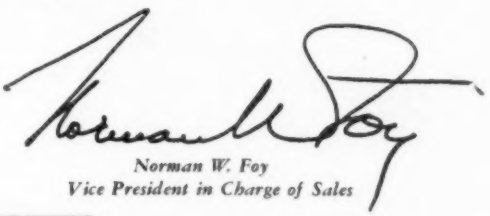
Fair treatment to our customers has been Republic Steel's firm policy over the years.

Through the postwar years, we were under severe pressure to take on new customers in many fields as well as to increase the tonnage of steel to particular categories of steel users. Republic maintained a position of fair, equitable treatment to steel users, with no preference to our own manufacturing divisions. This is a stand of which we are proud.

It has been our aim to build up our capacity so that we could provide more steel tonnage for existing customers as well as take on additional users. We have always considered our assurances of steel to customers to be real assurances, for we had to have the capacity to back up the orders. This is the reason for our substantial expansion program.

Republic's new two million ton expansion recently completed enables us to take on, with complete confidence, additional tonnages from old customers and orders from new customers.

When you place your orders with Republic —from pig iron to special finished steel, or for any of our multitude of fabricated steel products—you know that in boom times or in bad, we have the capacity to fill your orders or we don't take them!



Norman W. Foy
Vice President in Charge of Sales

REPUBLIC STEEL

REPUBLIC STEEL

General Offices • Cleveland 1, Ohio

World's Widest Range of Standard Steels and Steel Products

Alloy, Carbon, Stainless Steels • Titanium • Bars • Plates • Sheets • Strip • Tin Plate • Terne Plate • Cold Finished Steels • Steel and Plastic Pipe • Tubing • Bolts • Nuts • Rivets • Wire • Farm Fence • Nails • Pig Iron • Iron Powder • Coal Chemicals • Fabricated Steel Products • Steel Building Products • Steel and Aluminum Windows • Steel Kitchens • Shipping Containers • Materials Handling Equipment • Drainage Products

For More Information Write No. 264 on Inquiry Card—Page 32

this is a technical recording CHART

catalog # L21195...

Just one of 10,000 circular and strip recording charts cataloged and quickly available for every instrument in your plant!

*P.S. technical will help you design charts for new instruments or special applications

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TECHNICAL CHARTS Incorporated
BUFFALO 10, N.Y.

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Purchasing People

(*Continued from page 170*)

joined the purchasing department of the company in 1934. He became head of the department in 1946 and in 1952 was promoted to manager of purchases. Three years later, he was advanced to manager of purchases and real estate. Mr. Ogden is a member of the Public Utility Buyers Group of N.A.P.A., and in 1949-1950 served as its chairman. In 1951-1952 he served as president of the association and at the present time is chairman of the Business Survey Committee of N.A.P.A. From September, 1955 until July, 1956 he served as assistant director for materials, Office of Defense Mobilization in Washington.

W. Bruce McClelland has joined the executive staff of Skil Corporation, Chicago, Illinois. He will have direct responsibility for purchasing, production planning and materials control. From 1953 until his recent appointment, Mr. McClelland was a member of the production control staff of the Ford Motor Company, Dearborn, Michigan.

W. Bruce McClelland

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FOR

INQUIRY CARD

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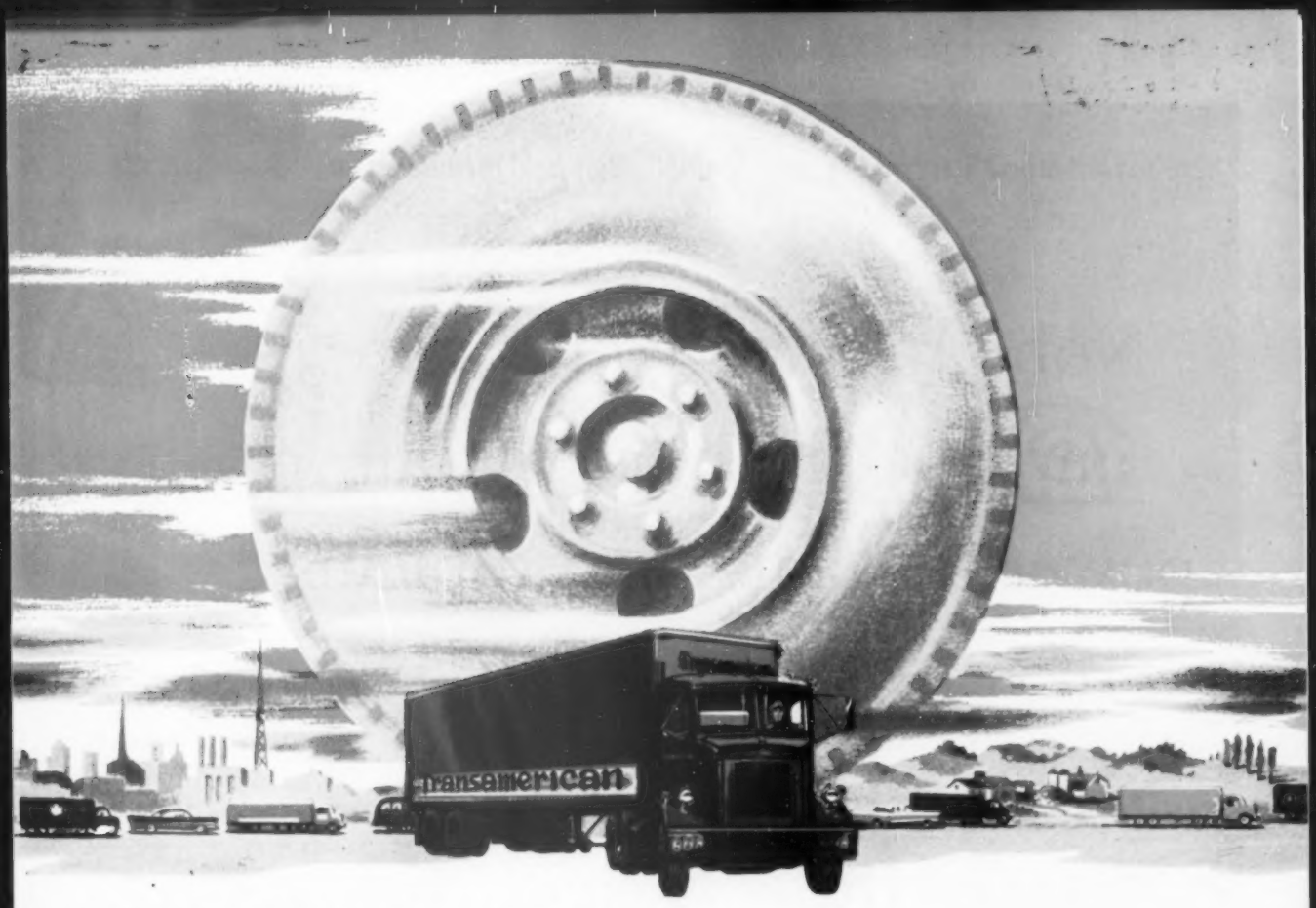

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From the eastern seaboard to the far west and southwest Transamerican moves your shipping under direct local control.

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From metropolitan centers to remote hamlets, Transamerican sees your shipments through under one responsibility

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Close control and rapid movement of your shipments are assured through constant contact with the shipment until delivery on schedule.

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Long experience and constant development have enabled Transamerican to keep abreast of the newest advances in freight transportation.

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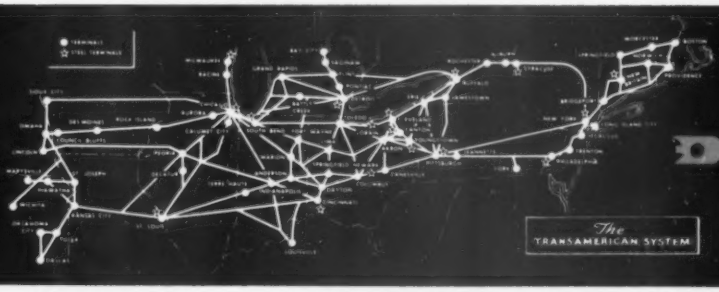
Whatever the destination of your shipment, Transamerican can take over and see it through on schedule anywhere in America.

Transamerican vital link in AMERICA'S SUPPLY LINE



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Freight Lines, Inc.

General Offices: Detroit 9, Michigan • VI 1-9400 • ROBERT B. GOTFREDSON, President

Here's what Morse's entry into the "Timing"® Belt field means to you . . .

Nobody gives you a more impartial analysis of your power transmission problems than Morse, because . . . *only Morse* offers all four of these basic drives plus a complete line of power transmission products

Basic Drives: Roller Chain, Silent Chain, Hy-Vo® Drives, and "Timing"® Belt.

Chain: High-Endurance (H-E), 8-series (Super Strength), Double-Pitch, Conveyor, Implement, and Attachment; AL, BL, Cable Chain, and Rollerless Lift Chain; Industrial Standard and 3/16″ Silent Chain.

Stock Sprockets: Plain Bore, Finished Bore, Taper-Lock—also made to order.

"Timing" Belt Sprockets: Plain Bore, Taper-Lock, Q.D.—also made to order.

Couplings: Flexible Roller Chain Couplings, Flexible Silent Chain Couplings, Morflex Couplings, Morflex Radial Couplings, and Marine Couplings.

Driveshafts: Morflex and Radial Driveshafts.

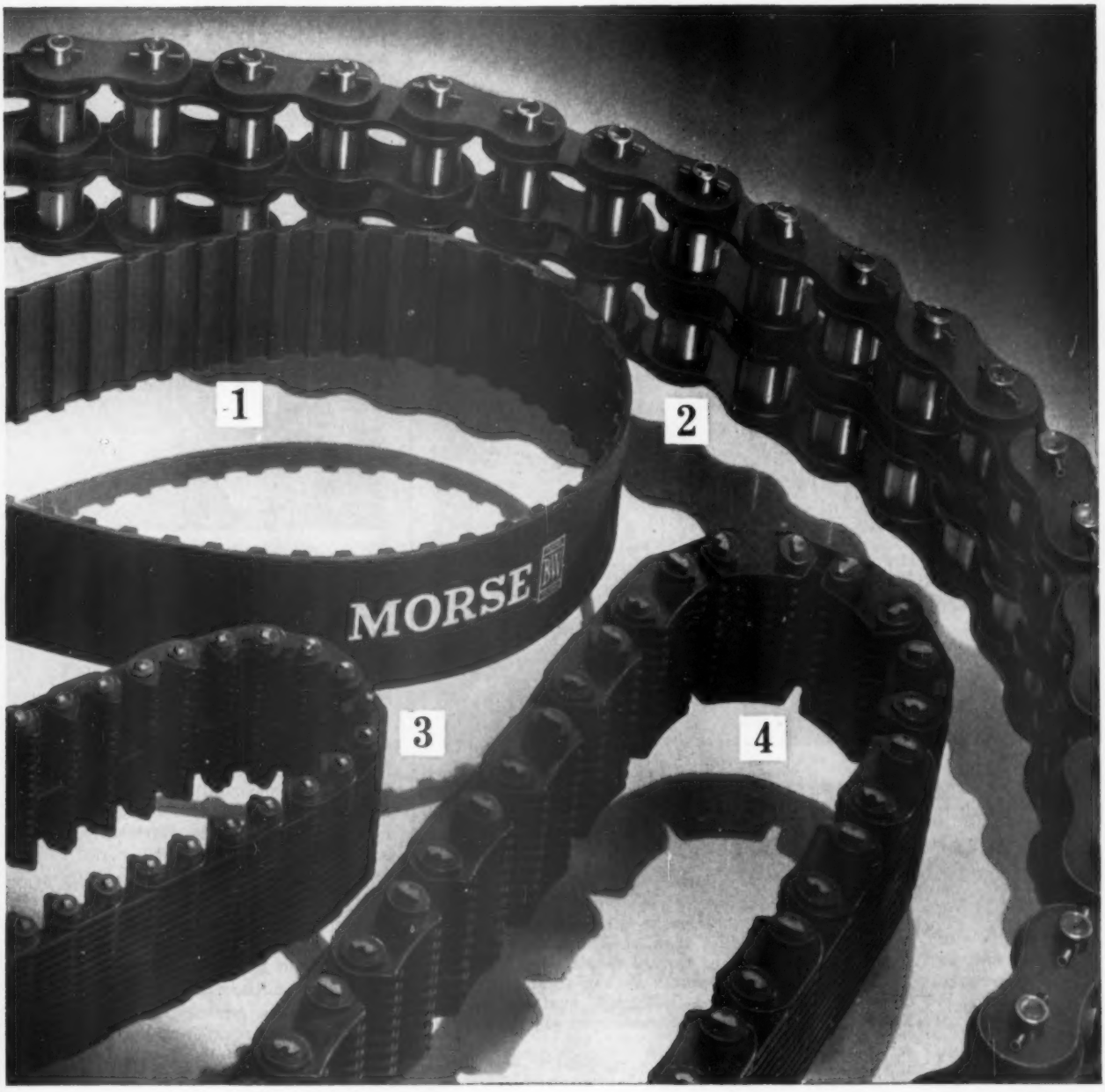
Clutches: Cam (Over-Running, Back-Stopping, Indexing); Pullmore; Over-Center, Centrifugal.

Speed Reducers: Eberhardt-Denver "RW" poweR-gear® Reducers; Gear Motors; "L" Worm Gear Reducers; "VX" and "DVX" Conveyor Drives; Miter Boxes; Helical Reducers.

Torque Limiters.

Look for your local Morse distributor in the Yellow Pages under "Power Transmission," or write:

MORSE CHAIN COMPANY, DEPT. 15-18, ITHACA, N. Y. Export Sales: Borg-Warner International, Chicago 3, Ill.



1. "Timing" Belt . . . for light weight and lubrication-free operation. Morse "Timing" Belts give positive, high-efficiency transmission from 0 to 16,000 FPM, 1/100 HP to 1,000 HP . . . provide slip- and stretch-proof service for life of drive.

2. Roller Chain . . . for low and medium speed applications. Precision-finished Morse Roller Chain is specially treated to withstand shock and fatigue, assure less maintenance, longer service life. Patented Spirol Pin Fastener construction.

3. Silent Chain . . . for smoother, quieter operation at higher speeds. In Morse Silent Chain the patented rocker joint operates with less friction and wear. It provides a cooler-running chain drive, with higher efficiency and longer service life.

4. Hy-Vo Drive . . . for extremely high speeds and horsepower. Exclusive with Morse, extra-tough Hy-Vo Drives transmit mile-a-minute speeds, and up to 5,000 hp loads; require minimum shaft space, usually eliminate outboard bearings.

IN POWER TRANSMISSION
THE TOUGH JOBS COME TO

MORSE

MORSE BW BORG-WARNER *

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Plants in: Ithaca, N.Y., Detroit, Mich., Chicago, Ill., Denver, Colo., Simcoe, Ont.

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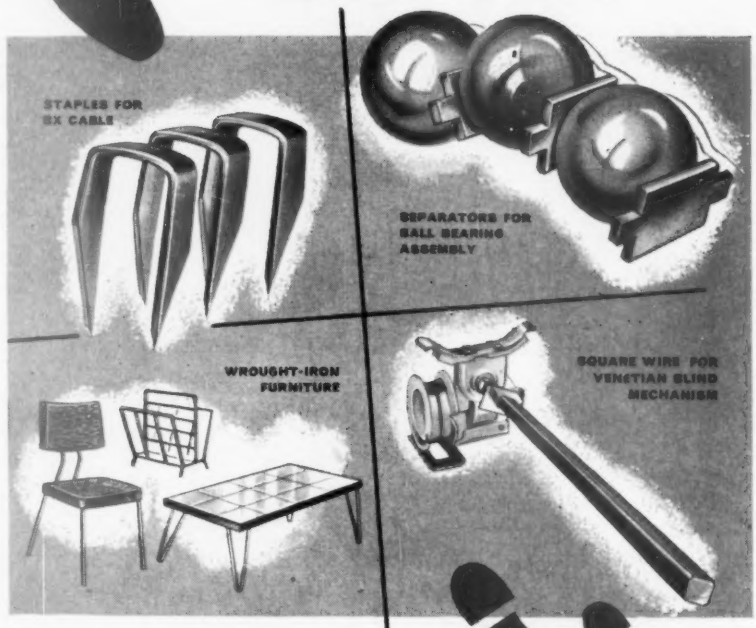
CONTINENTAL®
FLAT & SHAPED WIRE SAVES STEPS


STAPLES FOR BX CABLE
SEPARATORS FOR BALL BEARING ASSEMBLY
WROUGHT-IRON FURNITURE
SQUARE WIRE FOR VENETIAN BLIND MECHANISM

...cuts corners in production

• STANDARD AND SPECIAL SHAPES IN MANY SIZES

Shaped wire often saves steps by eliminating forging, stamping, and rolling operations—giving you a ready-made molding, product trim, or component that requires a minimum of further fabrication. Saves metal, too. From Continental you can obtain many cost-cutting wire shapes—V-shaped, oval, square, rectangular, triangular, keystone-shaped, and others.

• IN A WIDE RANGE OF TEMPERS AND FINISHES

Practically any temper, finish, or analysis in low carbon and medium low carbon steels can be specified to give you the *right* wire for the job—including #3 finish wire for electroplating.

• PRECISE MANUFACTURING CONTROL

Continental Special Shaped Wire is made under strict quality control to assure uniformity. You get a better product and fewer rejects—qualities that Continental wire customers especially appreciate. Let us help *you* save production steps, too. Write for the complete story of Continental wire today.

Wire Specialists for over Half a Century

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STEEL CORPORATION • KOKOMO, INDIANA

PRODUCERS OF Manufacturers' Wire in many sizes, shapes, tempers, and finishes, including Galvanized, KOKOTE, Flame-Sealed, Coppered, Tinned, Annealed, Liquor Finished, Bright, and special wire. Also, Coated Steel Sheets, Nails, Continental Chain Link Fence, and other products.

For More Information Write No. 268 on Inquiry Card—Page 32

Purchasing People

The Carpenter Steel Company, Reading, Pennsylvania, has named **George D. Nahm** assistant

George D. Nahm

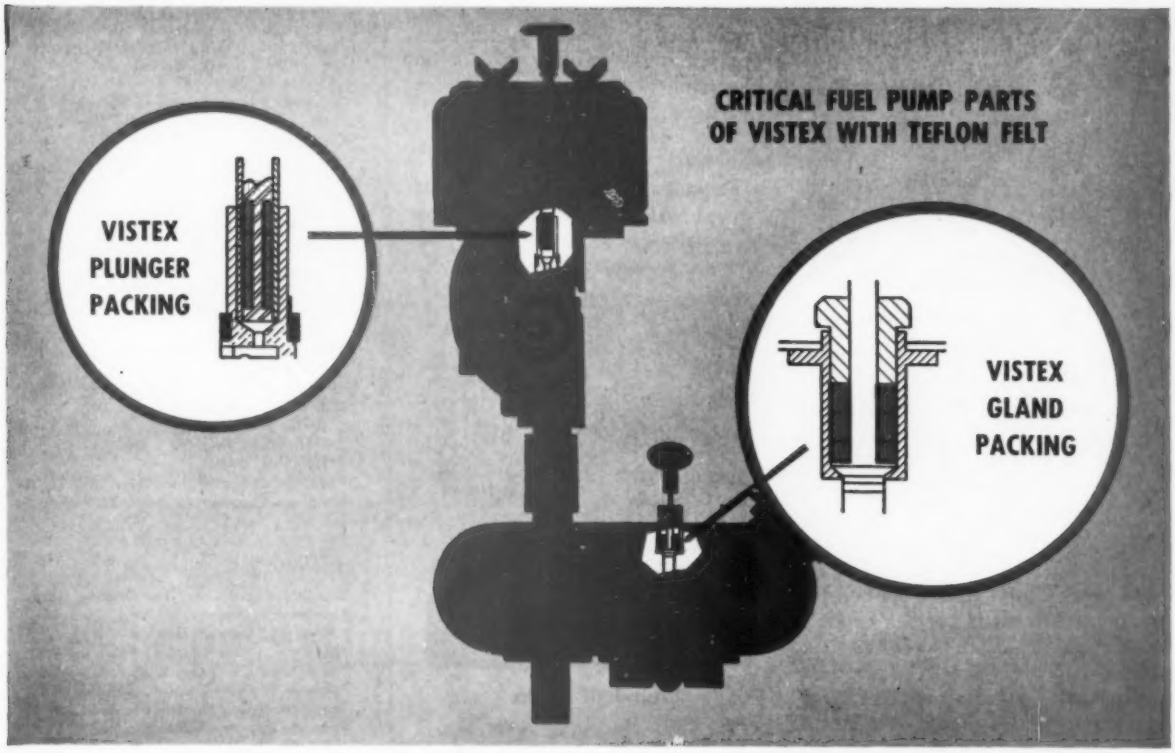
purchasing agent. Prior to his appointment, Mr. Nahm had been office manager in the purchasing department. He joined the company in 1949.

The following promotions in the purchasing department of Electro-Motive Division of General Motors, La Grange, Illinois, have been announced. **E. A. Baricevich** has been advanced from divisional buyer to assistant purchasing agent. He began his company career in 1937, holding various positions in the purchasing department. In 1952 he became divisional buyer, the position he has held up to his new appointment. **F. R. Monti** has been named divisional buyer. Previously, he had been a buyer and more recently a purchasing analyst. **R. E. Busse** succeeds Mr. Monti as purchasing analyst. Formerly, Mr. Busse had been a buyer in the purchasing department.

Carl J. Bliemeister has been named purchasing agent for the Granite City, Illinois auto frame plant of A. O. Smith Corporation, Milwaukee, Wisconsin. Formerly he had been a member of the company's central purchasing organization in Milwaukee. Since 1942 Mr. Bliemeister has been active in Smith's automotive parts business.

VISTEX WITH TEFLON FELTS

for positive . . . self-lubricating seals



Are dependable seals your problem?

Here's a *new* way to solve even the toughest ones . . . *American's Versatile Vistex-with-Teflon Felts!*

Felted of Teflon reinforced synthetic fibres, these advanced-type, self-lubricating Felts are setting new performance standards under both high and low temperature operating conditions. They resist *all* acids, alkalis, aliphatic and aromatic compounds . . . maintaining their thermal stability in applications up to 420°F!

You get better, stronger seals . . . Vistex-with-Teflon Felts withstand up to 5,000 psi . . . eliminating troublesome lateral plastic flow and sealing on polished or irregular surfaces with only minimum pressure.

Vistex-with-Teflon Felts can be precision cut without ravelling or fraying . . . having a *very* high tear value. Due to their great strength they are reusable for *even* greater economy.

Available in 36" x 36" sheets with thicknesses of 1/16", 1/32", 1/64" or as cut gaskets, strips and washers . . . quality Vistex-with-Teflon Felts can economically and efficiently meet your specific requirements.

Save time—consult our engineering staff for assistance in choosing the correct Felt. Remember: It's the largest, *most* experienced staff in the industry . . . and it's backed up with the largest, *most* modern laboratory facilities in the industry.

Write today for technical Bulletin VT-2-856 . . . on your company letterhead, please.

OTHER VISTEX FELTS BY AMERICAN

In addition to Teflon, Vistex Felts are also impregnated with such polymeric compounds as:

HYCAR • NEOPRENE • BUNA S
NATURAL RUBBER • RED NEOPRENE

. . . to meet individual chemical and physical conditions.

Shouldn't you investigate the advantages of these Felts, too? They are already being used in thousands of difficult applications throughout every major industry.

American Felt Company
TRADE MARK

General Offices and Engineering and Research Laboratories
74 GLENVILLE ROAD, GLENVILLE, CONN.

For More Information Write No. 269 on Inquiry Card—Page 32

Purchasing People

The Dobeckmun Company, Cleveland, Ohio, has announced the promotion of **Warren Dierk-**

Warren Dierking

ing to the postion of director of purchases. Associated with the firm since 1938, Mr. Dierking had served in various sales capacities until he was named purchasing agent, the post he held until his recent appointment.

Robert Gueydan has opened his own procurement service organization at 220 Fifth Avenue, New York, N. Y. His previous business affiliations include; manager, vice president and director of Alberto

Robert Gueydan

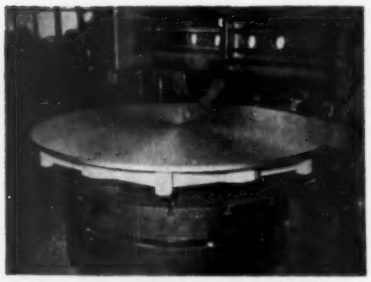
Ubbelohde Inc., assistant director of purchases, Remington Rand Division, Sperry Rand Corporation; and procurement representative of Convair, a division of General Dynamics Corporation. His new firm has been named R. G. Expediters Service. It offers a procurement expediting service for purchasing departments everywhere whose suppliers are located in the eastern United States. Mr. Gueydan will call on vendors, outline problems and circumstances for purchases and make facilities surveys and plant or vendor evaluations in all branches of industry and manufacturing.

Detroit Edison Company has named **Marshall Pease** manager of purchases and real estate. He has been associated with the

Marshall Pease

company since 1924. Mr. Pease held several positions until he became a coal buyer for the purchasing department in 1930. He was named fuel agent in 1939 and was promoted to assistant manager of purchases and real estate in 1952. Active in many organizations, he is a member of the Purchasing Agents Association of Detroit.

Charles E. Ripka III has been appointed purchasing agent at the Bridgeport, Conn., plant of Heppenstall Company, Pittsburgh. He succeeds Harry von Hacht, who has retired after 14 years of service. Mr. Ripka started his career with the company in 1952 at a plant then operated at Eddystone, Pennsylvania. In 1955 he was transferred to the Bridgeport plant as an instrument technician.



MEEHANITE CASTINGS ARE MADE ONLY BY MEEHANITE FOUNDRIES

The American Laundry Machinery Co., Rochester, N. Y.
Atlas Foundry Co., Detroit, Mich.
Banner Iron Works, St. Louis, Mo.
Barnett Foundry & Machine Co., Irvington, N. J.
Blackmer Pump Co., Grand Rapids, Mich.
E. W. Bliss Co., Canton and Toledo, Ohio
Centrifugally Cast Products Div., The Shenango Furnace Co., Dover, Ohio
Compton Foundry, Compton, Calif.
Continental Gin Co., Birmingham, Ala.
The Cooper-Bessemer Corp., Mt. Vernon, Ohio and Grove City, Pa.
Crawford & Doherty Foundry Co., Portland, Ore.
Empire Pattern & Foundry Co., Tulsa, Okla.
Florence Pipe Foundry & Machine Co., Florence, N. J.
Fulton Foundry & Machines Co., Inc., Cleveland, Ohio
General Foundry & Mfg. Co., Flint, Mich.
Georgia Iron Works, Augusta, Ga.
Geenlee Foundries Inc., Chicago, Ill.
The Hamilton Foundry & Machine Co., Hamilton, Ohio
Hardinge Company, Inc., New York, N. Y.
Hardinge Manufacturing Co., York, Pa.
Johnstone Foundries, Inc., Grove City, Pa.
Kanawha Manufacturing Co., Charleston, W. Va.
Koehring Co., Milwaukee, Wis.
Lincoln Foundry Corp., Los Angeles, Calif.
Nordberg Manufacturing Co., Milwaukee, Wis. and St. Louis, Mo.
Palmyra Foundry Co., Inc., Palmyra, N. J.
The Henry Perkins Co., Bridgewater, Mass.
Pohlman Foundry Co., Inc., Buffalo, N. Y.
The Prescott Co., Menominee, Michigan
Rosedale Foundry & Machine Co., Pittsburgh, Pa.
Ross-Meehan Foundries, Chattanooga, Tenn.
Sonith Industries, Inc., Indianapolis, Ind.
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Hartley Foundry Div., London Concrete Machinery Co., Ltd., Brantford, Ontario
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CASTING DESIGN BOOK OFFERED.

Send for your free single copy

Bulletin 44 — Contains 64 pages of helpful information on how to design sound castings.

Write today to Meehanite Metal Corporation, Department 28, 714 North Avenue, New Rochelle, New York.

MEEHANITE®

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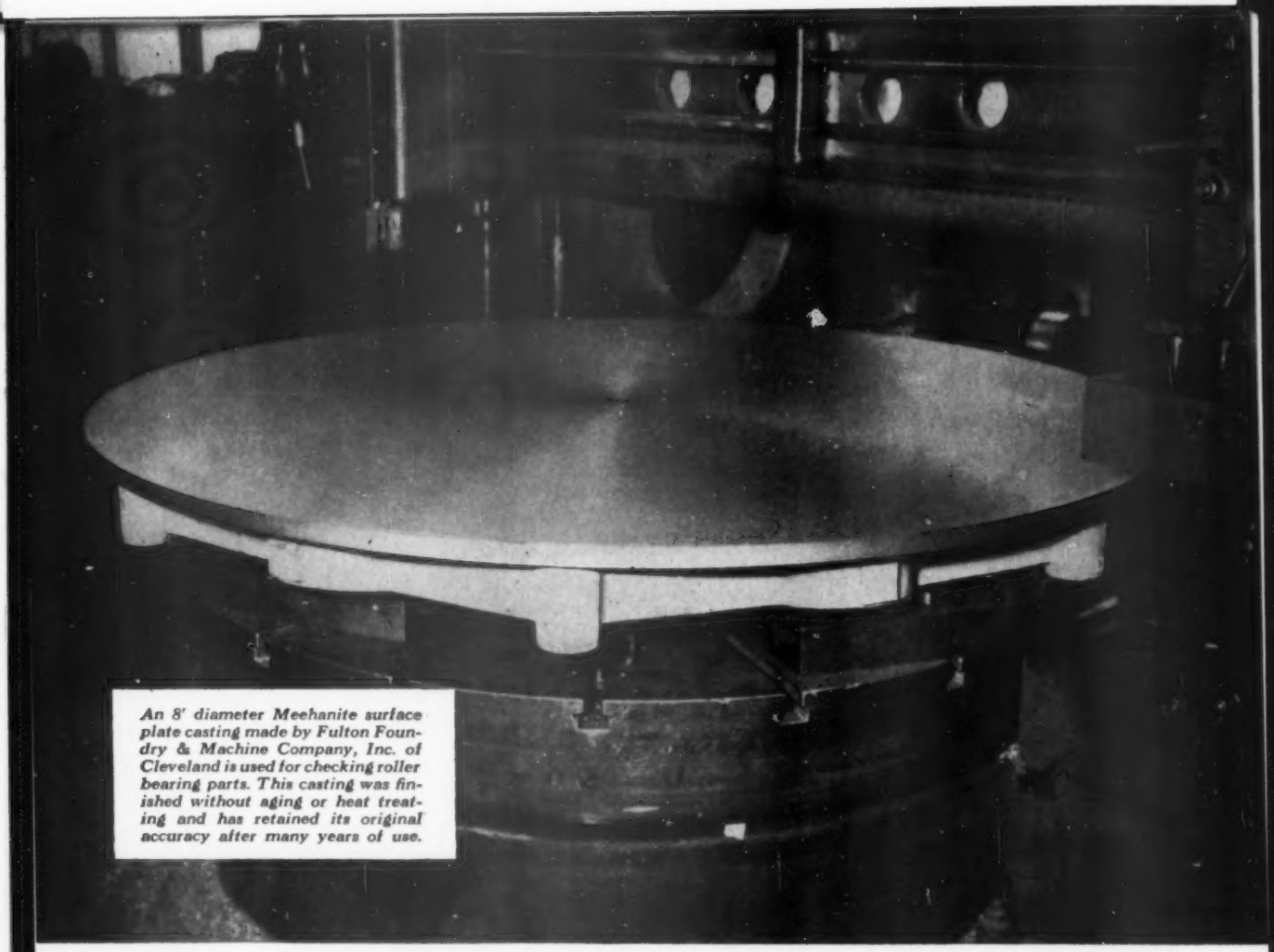


An 8' diameter Meehanite surface plate casting made by Fulton Foundry & Machine Company, Inc. of Cleveland is used for checking roller bearing parts. This casting was finished without aging or heat treating and has retained its original accuracy after many years of use.

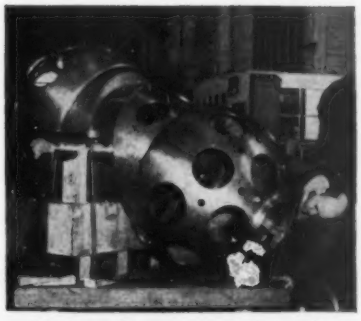
Meehanite castings maintain dimensional stability

Maintenance of accuracy of dimension is of first importance in modern engineering components. Meehanite metal has found wide favor with design engineers because it exhibits an unusually high degree of stability in the "as cast" and also in the hardened condition.

In addition to dimensional stability, the uniform solidity, greater strength, rigidity and shock resistance of Meehanite metal permits advantageous design changes and substantial reductions in casting weight.

Although structurally similar to high grade carbon tool steel, Meehanite metal contains graphite particles in controlled quantity and shape. This assures dense and uniformly solid castings regardless of weight or dimension.

If you have a question concerning the use of Meehanite® in your casting design, consult a Meehanite foundry and write today for your free single copy of "Casting Design As Influenced By Foundry Practice."



Meehanite® was selected in the construction of the Morrison Planetarium Projector because of its ability to maintain dimensional stability. These castings were made by Vulcan Foundry Company of Oakland, California.

MEEHANITE BRIDGES THE GAP BETWEEN CAST IRON AND STEEL®

MEEHANITE METAL

MEEHANITE METAL CORPORATION, NEW ROCHELLE, NEW YORK

RESISTS COLD
RESISTS HEAT

NEW GULFCROWN GREASE

combats these three enemies of proper lubrication

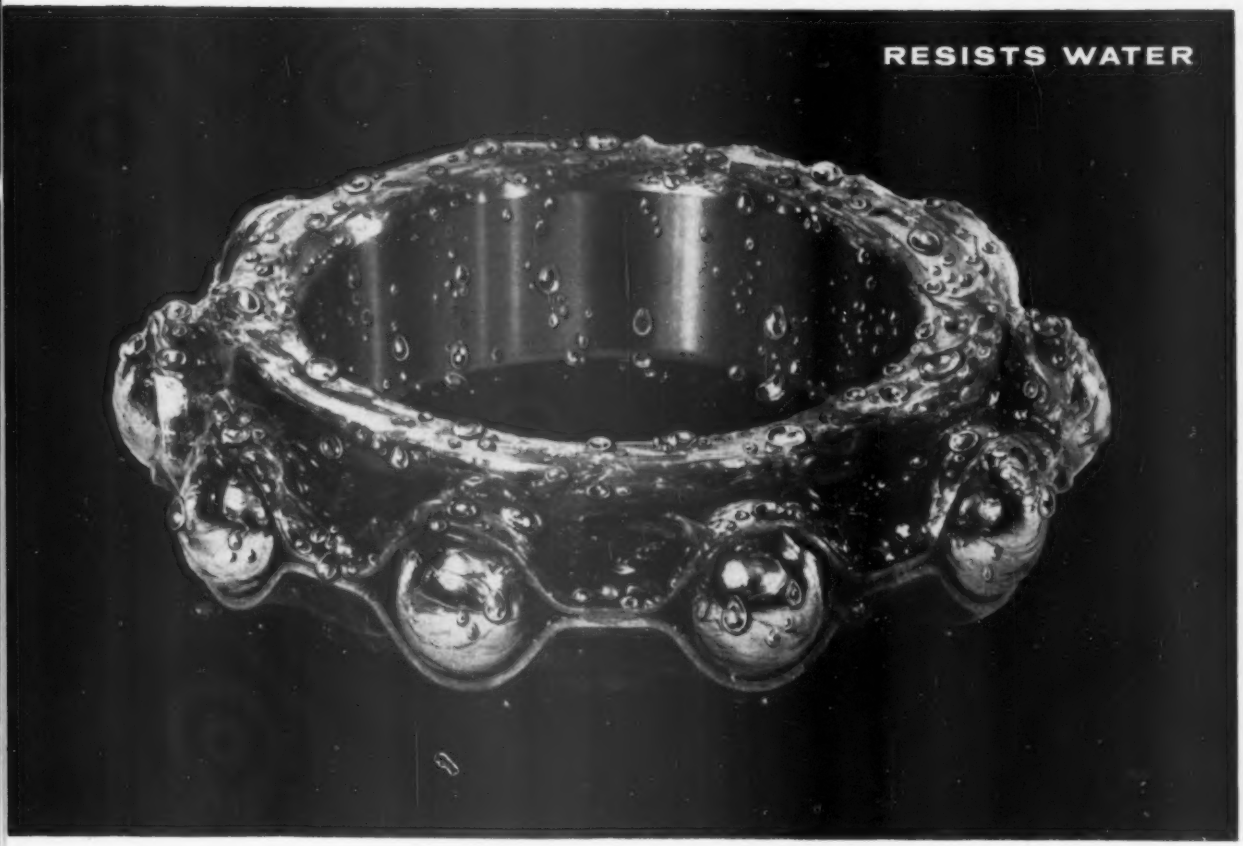
HEAT, COLD, WATER—new Gulfcrown grease works under conditions where many other greases fail!

This superior new lithium-base lubricant resists leakage—has excellent high temperature performance. It has excellent pumpability at 0°F (even lower under certain conditions). It resists removal from bearing surfaces even when washed with water. It can be applied from a centralized grease system or by grease gun.

Since its introduction earlier this year, Gulfcrown has proved itself an impressive money-saver—in steel, paper, and textile mills, and many other types of manufacturing plants. Gulfcrown's exceptional stability under adverse conditions reduces grease consumption. Its ability to serve many purposes simplifies lubricant storage and handling—avoids application errors. If you're looking for a grease you can use practically anywhere, Gulfcrown is it. Comes in N.L.G.I. consistencies 0, 1, 2, 3. Call your Gulf Sales Engineer now, or send for free literature.

GULF OIL CORPORATION
Department DM, Gulf Building
Pittsburgh 30, Pennsylvania

THE FINEST PETROLEUM PRODUCTS FOR ALL YOUR NEEDS



Industry Developments

Man-Made Diamonds for Industry

Modern scientific alchemy has produced 100,000 carats of man-made diamonds. That's the total output of General Electric's new pilot-plant operation in Detroit. And these man-made diamonds are equal in performance to the natural diamond.

A close look at the finished product is taken by John D. Kennedy, manager of the diamond section of the Metallurgical Products Department. His section produces the man-made industrial diamonds, which the engineers in the background are in the process of making.

Man-made industrial diamonds are used in grinding wheels to sharpen carbide cutting tools used in the machining of parts for aircraft, missiles, tanks and automobiles. Laboratory tests have proven that these diamonds compare in every way with natural diamonds.

INDUSTRY NEEDS diamonds. Much of the machining on aircraft, missiles, trucks and automobiles is done with cemented carbide tools; and diamond grinding wheels are used in the production and sharpening of these carbide tools. Because they are indispensible in many industrial operations, diamonds have been classified as a critical material by the government.

Virtually all industrial diamonds now come from the Belgian Congo and South Africa. A syndicate composed of British, Belgian and South African firms mine and market 95 per cent of the world's natural diamonds. This year, United States industry will import about seven million carats.

Depending on a source of supply that is a monopoly, as well as geographically remote, has obvious disadvantages. The competitive potential of a process to make diamonds has long been recognized by industry.

General Electric is meeting the challenge. Their Metallurgical Products Department is now producing diamonds on a pilot-plant basis. These man-made diamonds are equal in every respect to those made by nature. Optical properties, X-ray inspection, chemical examination and hardness tests—all the methods of comparison—show this to be so.

John D. Kennedy, manager of the Diamond Section, said that by the end of 1958 man-made diamonds will be used for *grinding wheels, lapping compounds and similar products.* He added that, while the current price of man-made ungraded diamonds is slightly above the cost of ungraded natural diamonds, improved techniques should bring the price down.

Research Continues

The man-made diamonds are large enough for most present industrial abrasive requirements, Kennedy said. He described the larger ones as about the size of a grain of coarse sand.

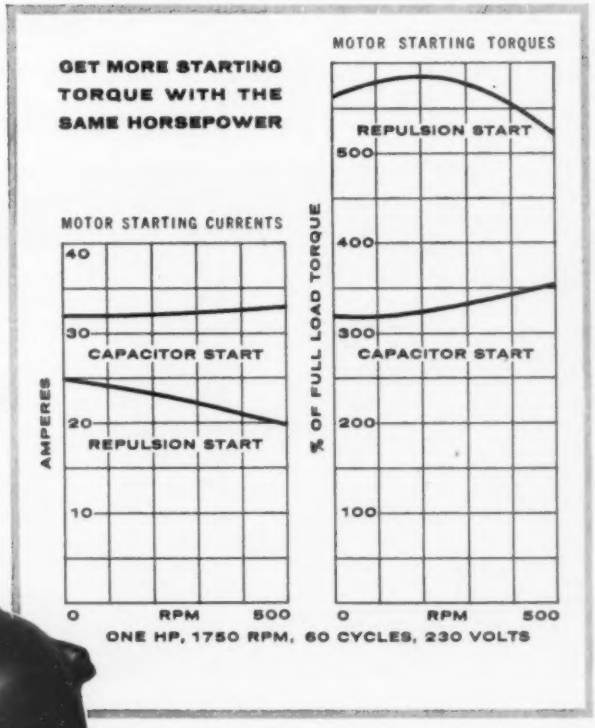
"The material which we make today is satisfactory for over two-thirds of existing diamond abrasive applications," said Kennedy. "We are confident that we can further satisfy industry needs as our product development program progresses."

Development of the diamond is no easy job. Formation of the diamond crystal requires sustained conditions of extremely high pressures and temperatures. After more than four years of experimentation, a diamond was produced at a GE research laboratory when a carbonaceous material was subjected for many hours to super pressures up to 1 1/2 million psi. The crystal's longest dimension was about 1/16 inch. Later, a pressure chamber was built to maintain temperatures well over 5000°F at pressures in excess of 1 1/2 million psi. With such chambers diamonds can be produced in a matter of minutes.

A by-product of this research is the production of a new substance called "borazon" that rivals diamond in hardness but is not found in nature. Still other research uses the "superpressure" apparatus to obtain new information about magnetism and lubrication.

WAGNER SINGLEPHASE MOTORS

This two-in-one motor is your best choice FOR HARD-TO-START LOADS



H. P.	OLD FRAME SIZE	PRESENT FRAME SIZE
1	203	182
1½	204	184
2	224	213
3	225	215
5	254	254U

Integral ratings, 1-5 hp are available in the latest NEMA Frame Sizes

4 pole (1750 RPM, 60 cycle and 1450 RPM, 50 cycle) ratings are interchangeable in mounting dimensions with capacitor start motors of the same ratings.

The Wagner Heavy Duty Type RA Repulsion-Start Induction Motor offers:

- *HIGH STARTING TORQUE*
- *LOW STARTING CURRENT*
- *HIGH OPERATING SPEED*
- *FLAT EFFICIENCY CURVE*

The Wagner Type RA is the work horse of the singlephase motor field. It combines high starting torque for quick, easy starts with low starting current and minimum light flicker. It has a constant high operating speed, even under overload, and a flat efficiency curve over a wide operating range.

You practically eliminate service problems when you power tough singlephase applications with Wagner RA Motors. They have unmatched ability to start high inertia or heavy friction loads repeatedly and they give many years of unfailing service.

Let a Wagner Sales Engineer show you how these motors can be applied to your needs. Call the nearest branch office, or write for Bulletin MU-220.

Wagner Electric Corporation
SERVING INDUSTRY SINCE 1891

WM58-2

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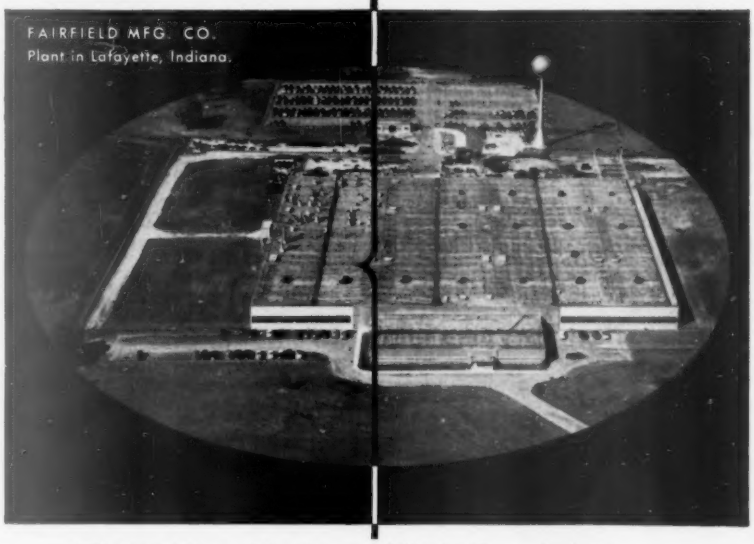
ELECTRIC MOTORS • TRANSFORMERS • INDUSTRIAL BRAKES • AUTOMOTIVE BRAKE SYSTEMS—AIR AND HYDRAULIC

To ease your needs for . . . NEW CAPITAL EXPENDITURES



This Ultra-Modern, High Precision GEAR MAKING Facility..... AVAILABLE TO YOU

Simple arithmetic explains why, TODAY, many of America's leading manufacturers no longer undertake to solve the problems involved in making gears. For them, FAIRFIELD IS THE ANSWER!

Every facility is available at Fairfield — cost-cutting, ultra-modern equipment kept busy by volume production. This makes for economy and efficiency that can benefit YOU.

Check with Fairfield NOW on your gear production schedules. As one of the nation's largest independent producers, Fairfield can usually give you quickest service available and handle any production requirement. *Become a Fairfield customer; it pays!* CALL OR WRITE.

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Gears and Differentials For FINE GEARS *Made to Order for:*

TRACTORS • HEAVY DUTY TRUCKS • AGRICULTURAL MACHINERY • POWER SHOVELS AND CRANES
MINING MACHINES • ROAD GRADERS • BUSES • STREET SWEEPERS • INDUSTRIAL LIFT TRUCKS

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Escalator Clauses

(*Continued from page 112*)

provisions must be certain but it is certain if under the facts and circumstances it can be made certain. Of the provision in a contract between an automobile manufacturer and a dealer that, "This contract is subject to change in price or design on all models without further notice," it was said by a federal appelate court.

Uncontrolled Standard

"There is no objection to a promise that it is indefinite so long as the parties can tell when it has been performed and it is enough when the time arrives, that there shall be in existence some standard by which that can be tested. It is often said that such a standard must not be one within the uncontrolled power of the promisor, as for example, that the promisor shall buy at any price which the promisee may fix."

To this was added, "Perhaps some courts would hold a promise such as we have suggested, too vague, but when the buyer must choose among classes of chattels which are defined or will be when the time comes and at prices when fixed by something other than the promisee's will, the usual rule is that an obligation arises."[10]

In a purchase contract made in 1865 for shovel handles at $1.25 a dozen, based on the price of gold at $2.25, that later came before the Supreme Court for review, it was provided,

"If the price of gold goes up or down, then the price of handles shall be advanced or reduced accordingly. But it is understood that no advance or reduction of the price of gold of twenty five percent shall change the price of handles unless it shall remain at the advanced or reduced rate sufficiently long to affect the general price of merchandise."

Of this escalation clause and its operation long ago in Civil War days, that court said, "In considering this contract we are to place ourselves as far as may be in the position of the parties with the knowledge possessed by them of former and present affairs. They are practical business men.

(*Please turn to page 188*)

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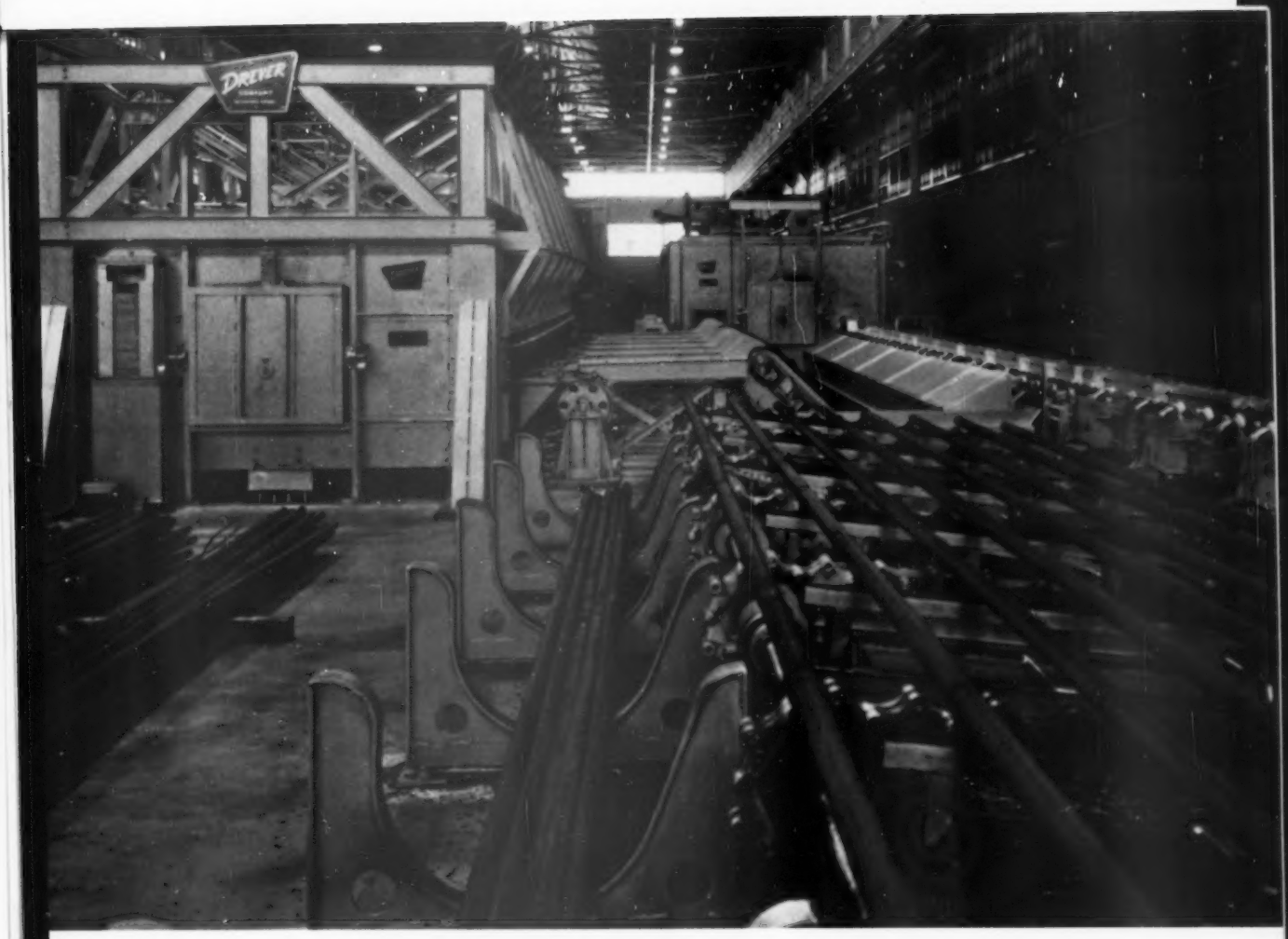


New Continuous Heat Treating and Tempering Furnaces Insure Close Temperature Control

Produce 400 series stainless bars to uniform hardness requirements

Known as the quench and temper method, this new Drever Long Bar Furnace, recently installed at J & L's Stainless Steel Division in Detroit, insures a more uniform hardness in stainless steel bars. It can handle a variety of sizes and shapes from ½ to 4½ inches in diameter and up to 30 feet in length.

This furnace is designed so that it can be switched from a normalizing to a quench and temper operation without interrupting its continuous operation.

With the addition of this new furnace, J & L's Stainless Steel Division can now offer its customers the uniform hardness they require today in stainless steel bar stock . . . just another reason why J & L is a leading producer of quality stainless steel bars.

This quality control, plus the ability to ship a wide range of finished stainless bar stock . . . immediately from inventory . . . is an unbeatable combination that J & L offers to its customers.

Why not write today for our latest stock lists, or for quotations on finished bars or billets?

Jones & Laughlin
STEEL CORPORATION
STAINLESS STEEL DIVISION
Box 4606 • Detroit 34, Michigan

Improve your Products with . . .

J&L STEEL STAINLESS
BAR • WIRE • BILLETS

"A case for automation"

Boxes seal themselves on this streamlined Hotpoint packaging line. Close tolerance H&D corrugated boxes make it work. Result: Faster packing, 30% labor savings. Better see H&D.

HINDE & DAUCH
Subsidiary of West Virginia Pulp and Paper Company

AUTHORITY ON PACKAGING • SANDUSKY, OHIO
14 FACTORIES • 42 SALES OFFICES

For More Information Write No. 275 on Inquiry Card—Page 32

Escalator Clauses

(*Continued from page* 186)

They had seen during the previous four years an enormous advance—extravagant and fictitious—in the price of everything and understood it to be dependent upon the character of the currency.

"Gold being at the price of £2.25 and having reference to that fact as giving their value, the one party agrees to deliver and the other to receive the goods at $1.25 per dozen. This price named should not however, be fixed and absolute. If the price of gold shall change the price of goods shall also change.

"But they did not propose to embarass themselves about trifles and the gold regulation shall be modified by the extent of the changes in price. If it varies more than twenty five per cent we agree that there shall be an important change and shall of itself work a change in the price of the goods."(11)

Traffic Costs

(*Continued from page* 93)

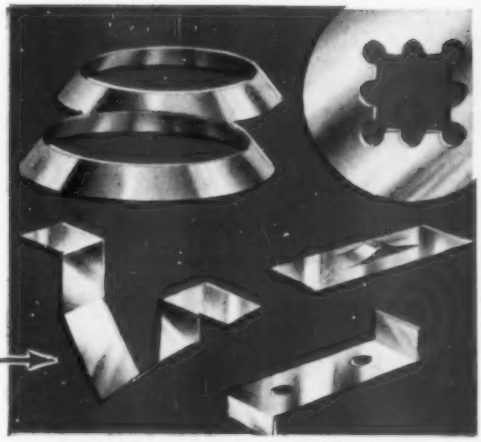
cluded in the selling price. Whether they are lower, the same, or higher than you would pay for similar protection you do not know, but you have no way of determining what effect that cost has on your price.

2.—Freight charges are usually the responsibility of the seller. Because these costs are buried in the selling price you are at the same disadvantage as with the insurance premiums. In respect to freight rates you cannot tell on what basis freight is reflected in the price. You don't know whether you are receiving the service on which this cost factor is based, or whether there is, on this particular traffic, an area in which your traffic department could do something to get a more favorable rate.

3.—The responsibility for auditing and paying the carrier's freight charges and the cost of the attendant accounting rests with the seller.

(*Please turn to page* 192)

If you fabricate
aluminum stamped parts
like these...

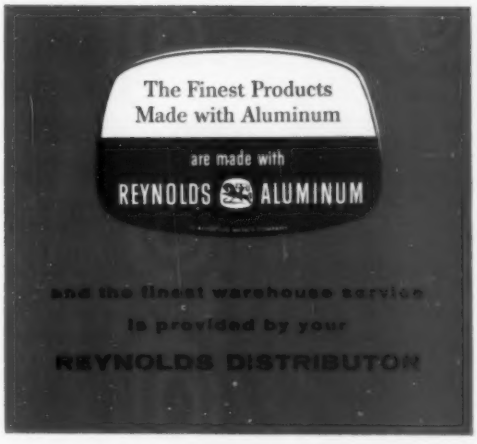


And you want a ready
source of coiled
aluminum sheet like this...

Get fast delivery,
complete stocks and
cutting service from your

REYNOLDS DISTRIBUTOR

Look under "Aluminum" in the classified phone book for your Reynolds Distributor



Watch Reynolds All-Family Television Program "DISNEYLAND", ABC-TV.

CDF PLASTICS AND FIBRE

CDF PRODUCTS OF TEFLON

CDF produces an unequalled range of electro-mechanical parts of Teflon*—such as spaghetti tubing, glass-based laminates, flexible insulating tapes, sheets, rods, tubes, and finished parts. Now also available: cementable Teflon in supported and unsupported forms; can be cemented to itself and to most other materials with commercial adhesives. If you have a potential use for a product made from unsupported or reinforced Teflon—from tapes to high-heat-resistant printed-circuit laminates—your CDF sales engineer is the man to call. Meanwhile, write for the new CDF Teflon Folders.

*duPont trademark for its tetrafluoroethylene resin

Heart of the best printed circuits—

CDF METAL-CLAD LAMINATES

Printed-circuit dependability begins at the base, and that's where CDF excels. Only CDF offers the combination of Teflon* resin and woven glass cloth for use under sustained temperatures of 200° C. In addition, CDF offers a *full range* of metal-clad laminates to meet every known demand of printed circuitry. High foil-bond strength withstands soldering heats, reduces assembly rejects. Full line of metal-clad grades—woven-glass and paper-base—with Teflon*, epoxy, and phenolic resins. Assembly costs go down when the job is done on CDF Metal-Clads! Write for CDF Metal-Clad Folder.

*duPont trademark for its tetrafluoroethylene resin

CDF DILECTO LAMINATED PLASTICS

for electrical and mechanical applications

DILECTO®, made in *scores of grades*, is the highest-quality laminated plastics made for rigorous duty in electrical, electronic, and mechanical equipment. Characteristics vary with the grade, so get the expert assistance of your CDF sales engineer.

Resins available in Dilecto:

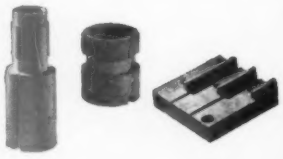
Phenolic	Epoxy	Polyester
Silicone	Melamine	Teflon*

Bases for Dilecto:

Woven Glass Fabric	Glass Mat
Woven Nylon Fabric	Asbestos Mat
Woven Asbestos Fabric	Cotton Mat
Woven Cotton Fabric	Paper (either cellulose or asbestos)

CDF gives fast technical and delivery service on sheets, tubes, rods, or complete fabricated parts of Dilecto plastics. Write for Catalog D-55-B.

*duPont trademark for its tetrafluoroethylene resin



PLASTICS FABRICATION BY CDF SAVES YOU TIME, MONEY, WORRY

Let CDF's well-equipped machine shops assume the complete responsibility for delivery of plastics and/or fibre parts on time and as specified. No time is lost at CDF between raw-material production and final fabrication; in fact, special production runs are often scheduled to coincide with machining, to save the customer money on finished parts. When you let CDF do it for you, there's no problem of shortages, rejects, waste. Undivided responsibility pays off for you!

CDF HIGH-HEAT ELECTRICAL TAPES

Flexible insulating tapes for hand or automatic winding, made of silicone rubber, silicone varnish, Teflon*, and Micabond, with and without backings. *Color identification*—CDF tapes of unfused Teflon are made in twelve colors for circuit identification. Call your CDF sales engineer, or write for test samples.

*duPont trademark for its tetrafluoroethylene resin

PURCHASING NEWS

DIAMOND VULCANIZED FIBRE

keeps costs down

Known for over sixty years as the standard of quality in fibre, Diamond® Vulcanized Fibre is made in many grades (bone, fish-paper, trunk, commercial, built-up) and is available in sheets, rods, tubes, strips, rolls, or formed specialties. Write for Catalog DVF-55.

LOW-COST VULCOID **Resin-impregnated Fibre.**

Vulcoid (made only by CDF) combines the desirable electrical properties and mechanical adaptability of vulcanized fibre with the great moisture-resistance and dimensional stability of phenolic laminates. UL-approved as Class A insulation in electronic equipment. Write for Bulletin V-55.

CDF CELORON MOLDED PRODUCTS

Celoron is a molded-macerated and/or combination laminated base bonded with phenolic resins. High strength, long life, and low cost are the characteristics of molded electro-mechanical parts made from CDF Celoron®. Its good electrical properties make Celoron an ideal molded insulator, while its high mechanical strength makes it an excellent material for gears, couplings, intricate static-free loom parts, etc. Get samples and Catalog C-56 by writing to CDF or asking your CDF sales engineer.

For a better motor or generator—

CDF MICABOND INSULATING PARTS

CDF mica V-rings and slot liners insulate America's best-selling motors and generators. Finest-quality mica splittings insure highest heat-resistance and insulation under severe operating conditions.

Forms of Micabond® available: Sheets; Tubing; Tapes (with backings of cotton, silk, paper, woven glass, and Mylar† polyester film; Fabricated Parts of various shapes. CDF supplies and fabricates Micabond to your strictest specifications—on time and at low cost. Call your CDF sales engineer or write for samples of Micabond and Catalog M-55.

†duPont trademark

THERE'S A CDF SALES OFFICE NEAR YOU

BALTIMORE 14, MD. NOrthfield 5-0964
2451 Ellis Road
BIRMINGHAM 6, ALA. VErnon 3-5713
110 95th Street, N.
BOSTON SALES OFFICE GRanite 2-2150
1245 Hancock St., Quincy 69, Mass.
BUFFALO 3, N. Y. WAshington 3929
495 Ellicott Square Building
CHICAGO 11, ILL. DElaware 7-6266
1201 Palmolive Building
CLEVELAND 14, OHIO CHerry 1-5220
550 Leader Building
DAYTON 3, OHIO KEnmore 3114
39 N. Torrence St.
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260 Denver Club Bldg.
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201 Officenter Bldg.
FT. WORTH 7, TEXAS FAnnin 3339
3414 Camp Bowie
GREENSBORO, N. C. BRoadway 4-0226
2103 Mimosa Drive
HARTFORD SALES OFFICE
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INDIANAPOLIS 5, IND. WAlnut 5-9803
709 East 38th St.
KANSAS CITY 11, MO. LOgan 1-6014
406 West 34th St.
LOUISVILLE, KY. HIghland 6479
2039 Bonnycastle
MILWAUKEE 19, WIS. LIncoln 1-7660
6108 W. Lincoln Ave.
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610 Plymouth Bldg.
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PHILADELPHIA DISTRICT SALES
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Bridgeport, Pa.
PHOENIX, ARIZONA ALpine 8-7893
P. O. Box 1587
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309 Shields Bldg.
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2683 Big Bend Blvd.
SPARTANBURG, S. C.
834 Hayne Street SPartanburg 3-6397
TULSA, OKLAHOMA LUther 7-6189
204 S. Cheyenne St.

Pacific Coast Representatives
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1714 First Ave. S.
PORTLAND 4, OREGON CApital 3-5123
209 S. W. First Ave.
LOS ANGELES 13, CALIF. MUtual 3241
320 East 3rd Street

Canadian Representative
DIAMOND STATE FIBRE CO. OF CANADA, LTD.
46 Hollinger Rd., Toronto 13, Ontario, Can.

EXPORT DEPARTMENT: BRIDGEPORT PENNSYLVANIA, U. S. A.

CONTINENTAL-DIAMOND FIBRE

A SUBSIDIARY OF THE Budd COMPANY • NEWARK 41, DELAWARE

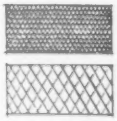
For More Information Write No. 277 on Inquiry Card—Page 32

facts to consider when you're buying

WOVEN WIRE
CONVEYOR BELTS
FOR
CONTINUOUS PROCESSING

Cambridge offers you

DIRECT FACTORY REPRESENTATIVES—Your Cambridge Sales Engineer is a specialist in woven wire belts—he can give you precise recommendations on belt or conveyor designs with a view toward providing you with the most economical belt consistent with long life and maintenance-free service.



A WIDE RANGE OF BELTS—9 basic weaves, any size or mesh. For processes involving high temperatures or acids, we'll furnish belts in any metal or alloy required. We'll also supply raised edges and any standard or specially designed surface attachments.

QUALITY MATERIALS AND WORKMANSHIP—Materials purchased from dependable suppliers, skilled factory men and the latest in machinery and fabrication techniques assure you of a better belt that will give longer service with a minimum of maintenance. Every Cambridge belt has smooth, uniform welds, accurate mesh count, exact mesh size.

SERVICE AND ENGINEERING LEADERSHIP—With the vast background of experience gained from years of service, our engineers and designers can design belt constructions best suited for special or new applications as they arise.

THE MOST COMPLETE REFERENCE MANUAL IN THE INDUSTRY—A partial list of contents includes: illustrations and descriptions of typical belt applications, flow sheets for automated processing, a complete section on metals and alloys, recommendations on selecting, installing and operating woven wire belts, illustrations, descriptions and metallurgical data on the various weaves, constructional features and examples of conveyor designs. For copy of this helpful book, simply write us direct.

For full details on how Cambridge can help you cut costs, maintain high product uniformity and increase production with continuous processing on Cambridge Woven Wire Conveyor Belts, talk to your Cambridge FIELD ENGINEER soon. He's listed in the phone book under "BELTING, MECHANICAL".

The Cambridge Wire Cloth Co.

WIRE CLOTH | METAL CONVEYOR BELTS | SPECIAL METAL FABRICATIONS

Department AK
Cambridge 1,
Maryland

OFFICES IN PRINCIPAL INDUSTRIAL CITIES

For More Information Write No. 278 on Inquiry Card—Page 32

Traffic Costs

(*Continued from page* 188)

With these traffic advantages, obtainable on F.O.B. destination purchases, given due weight, we prefer that at least all volume purchases be on an F.O.B. origin basis, because:

1.—As the title to the goods passes to the buyer prior to transportation your traffic department can specify the routing to be used. That route will be one which its examination and experience have shown will best suit your needs and for which you will pay the lowest published rate. Because the carrier knows that your traffic department controls this traffic it can more easily obtain expedited service when necessary. And it can regularly obtain good carrier service suited to your particular and, perhaps, peculiar needs.

2.—Because you cannot combine in stop-off loads and consolidations goods you do not own, or on which you do not pay the freight charges, you cannot use such services unless the terms are F.O.B. origin.

3.—When freight charges are a distinctly separate item from the seller's invoice price you can be sure his prices have not been inflated to cover unreasonably high transportation costs. Your traffic department, in turn, can take action to secure the lowest reasonable rate that traffic may justify. Too, if they can secure a favorable adjustment in classification ratings or freight rates it is you, not the seller, who will directly benefit.

4.—Your receiving departments realize tremendous benefits from having deliveries consolidated on as few carriers as practical. They can handle the maximum volume with a minimum shifting of the delivery vehicles and their own labor groups. In multiple building plants this factor becomes even more important than where receiving is centralized. Savings are not limited to the increased production that can be obtained for a given labor cost. Demurrage charges for delaying freight cars have recently been increased. During the last few

(*Please turn to page* 196)

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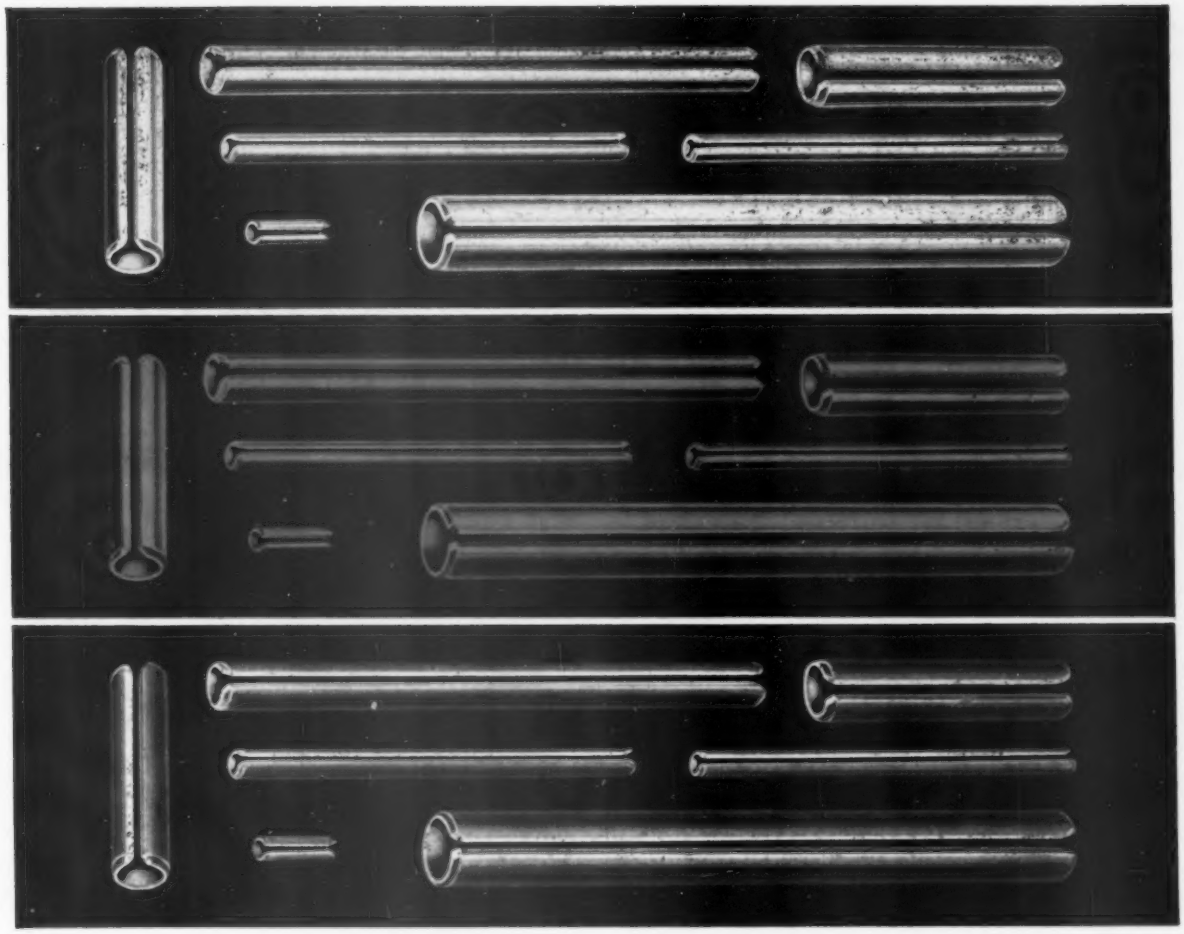


What are your Rollpin® requirements...

Corrosion-resistant steel, beryllium copper, or carbon steel? An "available" fastener with better than 90% of the catalogued size and length combinations obtainable from stock? A fastener with consistent dimensional quality control and fully dependable strength and vibration performance? A fastener that costs less than most of the pin type fasteners it replaces . . . and cuts assembly costs too?

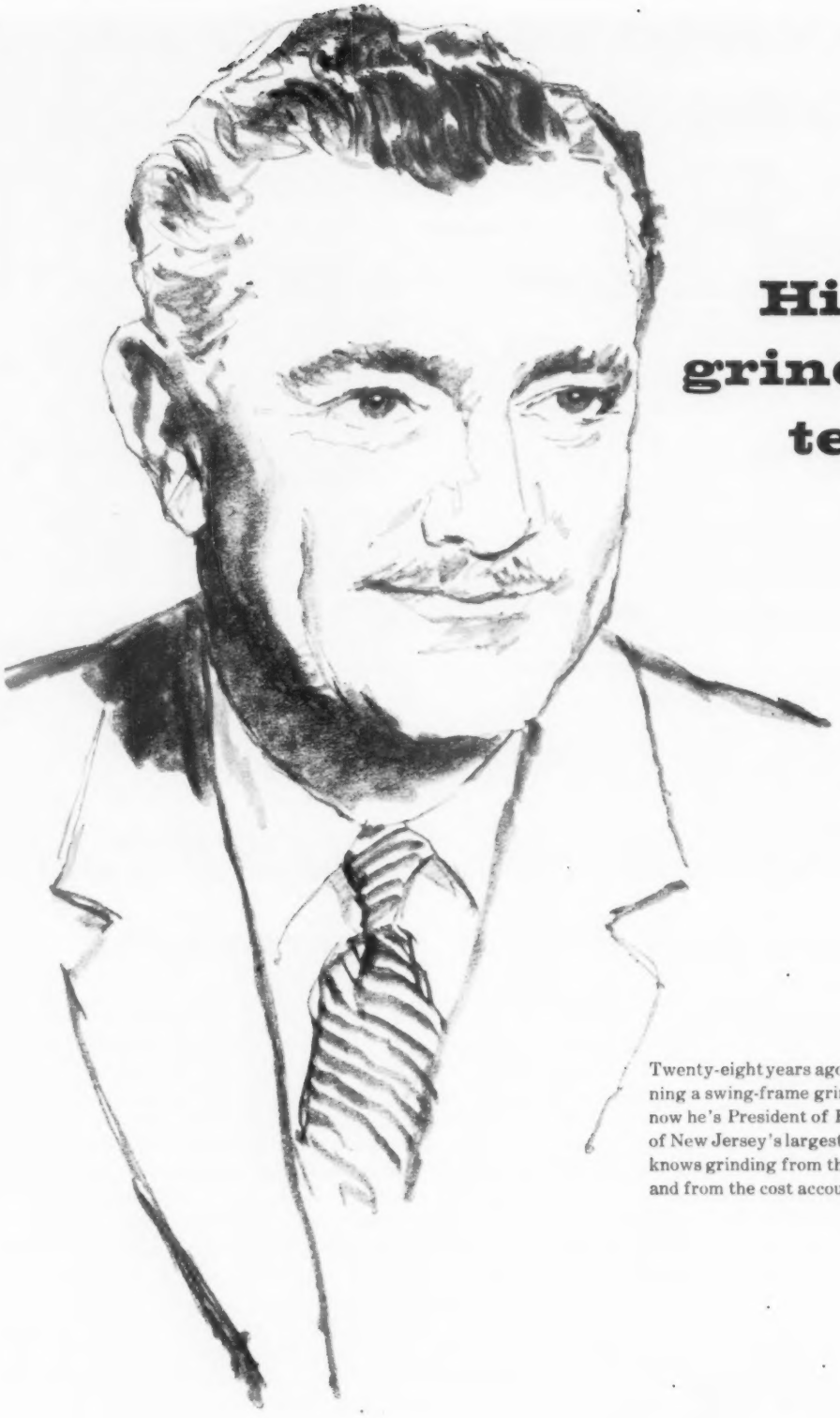
Slotted, chamfered, cylindrical Rollpin spring-pins meet these requirements and many others. Available Rollpin inventory stands at tens of millions of pieces. Rollpin performance is consistently high because uniform shear strength, dimensions and hardness are guaranteed by high ESNA quality control standards. Investigate installed Rollpin costs as compared to grooved-type pins, taper pins, precision dowels and many types of rivets.

Standard Rollpins are made from carbon steel and Type 420 corrosion-resistant steel in stock sizes from .062″ diameter to .500″. Cadmium, zinc or phosphate finishes may be specified. They're also available in beryllium copper for applications requiring exceptional resistance to corrosion, and anti-magnetic and non-sparking properties—in diameters from .062″ to .250″.

Why not simplify and speed up your orders by sending for data on all the Rollpin sizes and materials today? Elastic Stop Nut Corporation of America, Dept. R46-115, 2330 Vauxhall Road, Union, New Jersey.

ELASTIC STOP NUT ESNA CORPORATION OF AMERICA

For More Information Write No. 279 on Inquiry Card—Page 32



His new grinding technique

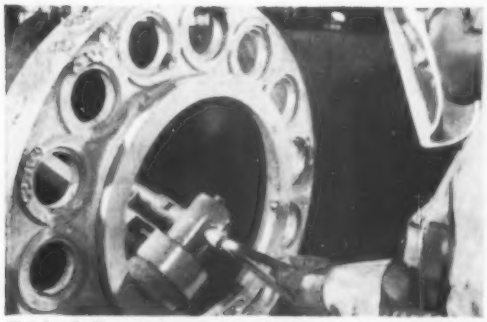
Twenty-eight years ago Jack O'Sullivan was running a swing-frame grinder for Crucible Steel... now he's President of Engineered Sales Co., one of New Jersey's largest abrasive distributors. He knows grinding from the operator's point of view and from the cost accountant's.

New baby swing-frame takes weight load of portable grinder off operator . . . enables him to grind smooth, flat surface without accidental scars and nicks due to fatigue.

cuts costs and back-aches

Sometimes, the answer to a P. A.'s prayer is a salesman who's willing to go right out in the shop and work with the operators. That's what happened when Cooper Alloy Corporation found they had grinding jobs that couldn't be done with big swing-frame grinders . . . and were costly back-breakers when done with portables.

They turned the problem over to Bay State distributor Jack O'Sullivan and he came up with an idea. Working with Bay State and Fox Grinders, Inc., he devised a baby swing-frame that used the conventional cup wheel and raised hub disc wheels normally used only on portables. This enabled Cooper's operators to grind hard-to-reach surfaces and do cut-off work without fatigue . . . and with a great deal more speed and accuracy.



Tricky I. D. grind demands a light, precise touch with a coarse-grained cup wheel (tapered or straight). Operator is free to concentrate on accuracy.

Versatility of new grinding set-up permits operators to use Bay State raised hub disc wheels ("hat" wheels) for notching and cutting off sprues, gates, risers.

Like Jack O'Sullivan, *all* Bay State representatives are more than just grinding wheel salesmen. That's why they often come up with ideas that result in basic operating improvements and economies. Why not call in *your* Bay State man? *Better grinding at lower cost – that is his business.*

BAY STATE WHEELS of PROGRESS

BAY STATE ABRASIVES

Bay State Abrasive Products Co., Westboro, Massachusetts.
In Canada: Bay State Abrasive Products Co., Ltd., Brantford, Ontario.
Branch Offices: Bristol, Conn., Chicago, Cleveland, Detroit, Pittsburgh. *Distributors:* All principal cities.

YOU CAN GET 43 STOCK SIZES 1/8" to 3"

HALLOWELL

SOLID STEEL COLLARS

from your industrial distributor

All of these precision-machined solid steel collars are size-marked for quick identification, and fitted with the famous self-locking UNBRAKO Socket Set Screw for positive positioning on the shaft. Write for Bulletin 868. STANDARD PRESSED STEEL CO., Jenkintown 31, Pa.

STANDARD PRESSED STEEL CO.

HALLOWELL POWER TRANSMISSION DIVISION SPS JENKINTOWN PENNSYLVANIA

For More Information Write No. 281 on Inquiry Card—Page 32

Traffic Costs

(*Continued from page* 192)

months, several motor carrier bureaus have published apparently with the Commission's blessing, detention rules. These assess penalty charges for the delay of equipment beyond what they consider a reasonable period for loading or unloading specified units of weight.

5.—An increasing number of commodities can now be moved under two or more different rates, depending on the declared or released value specified by the shipper at the time of shipment. The spread between these rates may be as much as 30%. You should decide on what value basis you are willing to enter into a contract for transportation with the carrier. In some instances you may want full coverage, in other cases you may find the freight cost reduction will warrant your arranging your own insurance protection, and in other instances you may assume the risk as self-insurors.

Every day this business of traffic becomes more and more technical. We are continually confronted with new regulations and restrictions.

CLASSIFIED DEPARTMENT

Contract Work • Equipment For Sale • Employment and Business Opportunities

Send orders to: CLASSIFIED DEPARTMENT • PURCHASING • 205 East 42nd Street, New York 17, New York

RATES

Undisplayed (set solid) ..... 90¢ line
Positions Wanted ..... 45¢ line

Displayed ..... $8.50 inch

REQUIREMENTS

Undisplayed (want ad style), minimum charge 4 lines, prepaid. Figure forty-four letter spaces (five average words) to a line. Add one line for box number address; replies forwarded without charge.

Discount of 10% for twelve consecutive displayed insertions. Forms close 15th of month preceding date of publication.

POSITION WANTED

PURCHASING ASST. 29, INITIATIVE, 2 YRS. INDUSTRIAL PURCH. EXP., 6 YRS. QUALITY CONTROL, COLL. INDUSTRIAL MGMT., SEEKS POSITION WITH RESPONSIBLE FUTURE. WRITE, BOX 1538, PURCHASING, 205 E. 42nd ST., NEW YORK 17, N.Y.

Purchasing man with Engineering background or experience. Such a man should coordinate engineering specifications of component units used in manufacture of Processing Equipment and Materials Handling Equipment with purchasing of such units. Age 35-45. Write, Box 1537, PURCHASING, 205 East 42nd St., New York 17, N. Y.

LP GAS INSTALLATIONS and ANHYDROUS AMMONIA PLANTS

Designed & Installed

"There's No Substitute For Experience"

PEACOCK CORPORATION

Paul E. Peacock, Jr., Pres.

Box 268, Westfield, N. J.

HELP WANTED

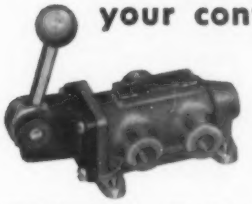
SALES REPRESENTATIVES WANTED

Manufacturers Agents and Sales Representatives experienced calling on plant engineers, plant supt.'s and maintenance men wanted by national manufacturer of building maintenance specialties. Our products are non-competitive, heavy repeat volume, earning some of our representatives over $15,000.00 annually. Write stating experience, types of lines presently handled and exact territory serviced. Mr. P. U. Brinkman, RE-NU-IT CORP., 424 West 42nd Street, New York 36, N. Y.

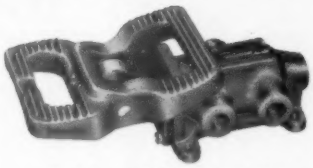
Schrader®...

your one source for AIR VALVES

full line for every use—immediately available from your conveniently located Schrader Distributor

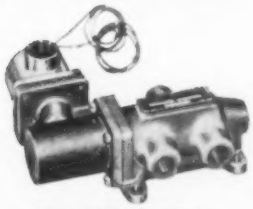


Hand-Operated Four-Way Valve



Foot-Operated Four-Way Valve

Pilot-Operated Valve



Solenoid-Operated Valve

Rotor Type Valve

Cam-Operated Valves

Flow Control Valves

Quick Exhaust Valves

Two- and Three-Way Poppet Type Valves with Roller Lever

Schrader
a division of SCOVILL

Schrader's complete air products line can meet your every need.

A. SCHRADER'S SON • *Division of Scovill Mfg. Co., Inc.* • BROOKLYN 38, N. Y.

QUALITY AIR CONTROL PRODUCTS

For More Information Write No. 282 on Inquiry Card—Page 32

Convair helps improve plant hygiene with SBS-30 waterless skin cleanser

In this ultra-modern plant are produced many of Democracy's air defenses. Here, too, is achieved an ultra-modern plant hygiene program with the help of SBS-30 Waterless Skin Cleanser.

To maintain cleanliness on this priority production, Convair has installed SBS-30 Waterless Skin Cleanser dispensers in "difficult soil areas". SBS-30 affords this fast, safe and thorough "on-the-job" way of cleaning that requires no water, plumbing or complicated installation.

Wherever they are installed, SBS-30 Waterless Skin Cleanser dispensers help Convair to produce savings through greater "on-the-job" efficiency. Man-hours are saved by reducing the number of trips to distant wash areas. The incidence of industrial dermatitis is reduced through improved personal hygiene.

Why don't you, like Convair and hundreds of other industrial leaders, take a serious look at SBS-30 Waterless Skin Cleanser. WRITE TODAY—we'll rush complete, detailed literature.

Write Dept. 58-A5

*Trademark

SBS sugar beet products co.

SBS WATERLESS WASHSTATION*
"Brings the Washroom to the Worker"*

MAIN PLANT: 302 Waller St., Saginaw, Michigan
Los Angeles, California • Newark, New Jersey

CANADIAN SUBSIDIARY: Chemical By-Products, Ltd., 23 Racine Road, Rexdale, Ontario, Canada

For More Information Write No. 283 on Inquiry Card—Page 32

THIS is No Ordinary Power Hack Saw Blade

This is the *unbreakable* MARVEL High-Speed-Edge Hack Saw Blade—the first bi-metal blade—invented, developed and introduced by MARVEL. This blade was developed to cut any material from the free machining steels to the toughest alloys, fast, accurately and economically. Just one type blade to handle any job—no switching blades to cut different materials.

MARVEL blades can be tensioned from 200% to 300% more taut than ordinary blades. This advantage permits heavier feed pressures to be used without deflection or fear of breakage.

This rugged cutting tool assures outstanding economy, accuracy, long life and complete safety—*it is unbreakable.*

Ask for MARVEL Blades by name and you can be sure you're getting the best. Leading Industrial Distributors have them in stock. Write for latest Cutting Tool Bulletin. FB-1021

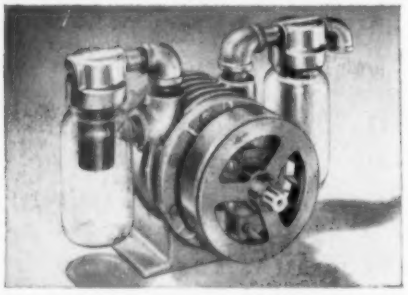
ARMSTRONG-BLUM MFG. CO.
5700 W. Bloomingdale Ave., Chicago 39, U.S.A.
Manufacturers of the Outstanding MARVEL Metal Saws

For More Information Write No. 284 on Inquiry Card—Page 32

ROTARY AIR GAST PRODUCTS

Runs without oil —

Model 3040 Oil-less Air Pump. Vac. to 20", pressure to 10 p.s.i. To 24 c.f.m., ¾ to 1½ h.p.



Oil-free air blast with carbon-vane GAST rotary AIR PUMPS

Other Oil-less Models

Built in six smaller sizes, some with integral motors — 1/12 to ½ h.p.

See Catalog in Sweet's Design File

Need compressed air that's *absolutely free* of oil mist? A Gast Oil-less Air Pump may be your answer! Air flow *can't* contain oil vapor, because no oil is used.

You also eliminate lubrication problems when vacuum or pressure pump is mounted in a hard-to-service location.

Four carbon vanes lubricate themselves. Ball bearings are grease-sealed for life and separated from pump chamber by a ventilated space. Built in 7 models.

Write for Oil-less Bulletins 152A and VP-356.
GAST MANUFACTURING CORP., P.O. Box 117-X, Benton Harbor, Michigan.

GAST ROTARY
"Air may be your answer!"

- AIR MOTORS TO 7 H.P.
- COMPRESSORS TO 30 P.S.I.
- VACUUM PUMPS TO 28 IN.

For More Information Write No. 285 on Inquiry Card—Page 32

GUARANTEED

to give drip-tight leak-proof seal

greatest name in unions

DART

Available through your local distributor.

For over 55 years the firm guarantee back of each and every DART UNION sold has been — *"if one should leak through we will give you two"!* The record reveals that less than 1 in every 100,000 has proven to be faulty. The extra wide bronze to bronze seats, precision ground to a true ball joint, mounted in heavy malleable iron pipe ends and protected by an extra heavy union nut, make a drip-tight, leak-proof connection WITHOUT EXCESSIVE WRENCHING time and time again.

Guarantee positive tight connections and extra long service on your pipe lines by using the DART GUARANTEED UNION.

Yours on request: Descriptive brochure on Dart Unions and Union Fittings.

DART UNIONS *Products of* **DART UNION COMPANY PROVIDENCE 5, R. I.**

GENERAL SALES AGENT

THE **Fairbanks** COMPANY
393 LAFAYETTE STREET, NEW YORK 3, NEW YORK
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For More Information Write No. 286 on Inquiry Card—Page 32

POWERFUL NEW PLUNGER CLEARS

CLOGGED TOILETS

in a jiffy!

Clear messy, stuffed toilets
Cut maintenance costs with

TOILAFLEX

Toilet ALL ANGLE **Plunger**

Ordinary plungers don't seat properly. They permit compressed air and water to splash back. Thus you not only have a mess, but you lose the very pressure you need to clear the obstruction.

With "TOILAFLEX", expressly designed for toilets, no air or water can escape. The full pressure plows through the clogging mass and swishes it down. Can't miss!

Get a "TOILAFLEX" for your home too. Positive insurance against stuffed toilet.

- Double-size cup, double-pressure
- Tapered tail gives air-tight fit
- Designed to flex at any angle
- Centers itself, can't skid around

$2.65 Fully Guaranteed

Order from your Supplier of Hardware or Janitor Supplies

THE STEVENS-BURT CO., NEW BRUNSWICK, N. J.
A Division of The Water Master Company

For More Information Write No. 287 on Inquiry Card—Page 32

RUGGED

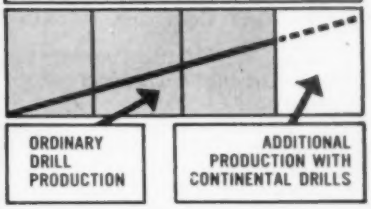
Certified **DRILLS**

CONTINENTAL

MORE HOLES PER DRILL

Today's drilling problems on both standard and new metals require twist drills with *something extra* built into them. That's why Continental drills are so acceptable to leading *cost conscious* production plants. Reduced friction heat and greater chip clearance are only a few of the reasons why Continental drills *last longer*—up to 25% more production. Ask your industrial jobber for the "Continental Story"

MAJOR PRODUCTION PLANTS PROVE CONTINENTAL DRILLS LAST LONGER!



CONTINENTAL DRILL CORPORATION

555 W. Adams St., Chicago 6, Illinois

WAREHOUSES:

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Letters To The Editor

LEADING THE LEADERS

The Pulse of Business is the best summary of economic conditions and reports on significant trends that I have ever seen in any magazine—and I see many.

What I find especially noteworthy is that a specialized methods magazine—and not, as might be expected, one of the giants among the general business journals—has this leadership.

This is definitely something you and your staff can be proud of.

H. M. Wilson
Director of Purchasing and Production Control
Victor Adding Machine Co.
Chicago, Illinois

● Thanks to Reader Wilson and the many others who have expressed the same views. The popular Pulse now appears on page 7 of every other issue.

26 ISSUES A YEAR

We are looking forward to your new plan of 26 issues a year. You are to be commended for your contribution to the purchasing profession.

W. S. Welch
Corporate Consultant
Inventory Management
Minneapolis-Honeywell Regulator Co.
Minneapolis 8, Minnesota

INVENTORY CONTROL TABLES

Mr. J. W. Hartung, manager of the purchasing department of St. Regis Paper Co. has asked us to reprint the following letter he is sending to readers requesting copies of the St. Regis Inventory Control Systems and Tables described in our New & Notable section in the December issue:

Dear Sir:

We deeply apologize for the fact that our supply has been exhausted. We are very gratified with the response the readers of PURCHASING Magazine have shown in this endeavor. We are presently working with the editors of the magazine to secure reprints for distribution.

We will keep your name on file and as soon as these reprints are available, we will send you a copy.

Very truly yours,
J. W. Hartung

MORE ON "MILITARY BUYING"

There appears to me to be much merit in the eight recommendations made by your editors with respect to honest and efficient expenditures of public funds.

My suggestion is that Messrs. Farrell and Ammer, accompanied by someon skilled in bill drafting, arrange for a conference with Joseph Campbell, the comptroller general, to enlist his aid in the preparation of a draft of what needs to be enacted into law.

The proposed legislation, as approved by Mr. Campbell, should then be submitted to Percival F. Brundage, the director of the Bureau of the Budget for his advance information.

Carl Hayden
U.S. Senator, Arizona
Chairman, Senate Committee on Appropriations

We agree with and wholeheartedly endorse your comments (on military buying). While agreeing with the philosophy that there is good justification and economy in applying the principles of negotiated buying, we would at the same time support many of the findings of the subcommittee. Its comments on the conduct of negotiations and on the bases for disqualifying bids are certainly pertinent.

Your efforts to constructively suggest improvements on military buying practices are certainly to be encouraged. As spokesmen for the purchasing function within industry we believe that you will be heard, and that benefits to the Government and to industry will be realized.

T. I. Moseley, President
Dalmo Victor Company
Belmont, Calif.

I share with you the belief that better understanding is needed of military procurement practices and especially of negotiation. This article should go far toward creating improved understanding. The approach of the study was very fair to all concerned and I feel sure it should contribute to the development of improvements in the methods whereby the Armed Services are seeking maximum value for money spent.

Gen. N. F. Twining
Chairman
The Joint Chiefs of Staff

I know of no single effort made in recent years which is more honest and helpful for the military procurement people, for the contractors, or for the taxpayers.

J. E. Callahan
Garrett Corp.
Belmar, N. J.

Your article on Military Buying makes beautiful reading up to the item under "new techniques" titled "Incentives for Suppliers", and then the whole article falls apart. What manner of supplier is he (unless we are placing orders with Soviet ship yards) who will charge himself, and you, and I 45 per cent extra for merely doing his job! Worse, what fool purchasing agent would *accept* such a condition, much less *suggest* it! I wonder how much incentive pay a Japanese or German yard would ask? No damned wonder American yards price themselves out of the market—except to the government. "Alice" would probably have turned the situation over to the "Mad Hatter" for clarification. I expect Representative Hebert will be as equal to the occasion.

Darrell M. Blizzard
Upperco, Maryland

● Since the U.S. Post Office Department reports that there is no such an office as Upperco, Md., the existence of Mr. Blizzard also appears in doubt. In any event, the "45 per cent extra" referred to was not an extra—it was a portion of the saving made through the efforts of the supplier. Under the advertising for bids system, of course, 100 per cent of any saving would have gone to the supplier, and none to the taxpayers.

I have read the article on military buying and I fundamentally disagree with it and negotiated contracts. I know from personal experience that many billions of dollars have been wasted by this method. I would be willing to see negotiated contracts in the neighborhood say of 25 per cent of the total and on those items which are secret or are so technical as to make it inappropriate to have bids. However, there is no excuse at all for having 90 per cent and over of the contracts negotiated, and I, personally, shall continue to fight against this unwarranted and outrageous practice.

I hope your group will also come to this view, for a purchasing agent puts himself under a cloud of suspicion when he buys by this method. One must not only be honest but one must also appear to be honest.

Paul H. Douglas,
U. S. Senator, Illinois
by Howard E. Shuman
Legislative Ass't.

● PURCHASING's editors feel that specific evidence given in the article stands uncontradicted by the very general observations above. As for purchasing people putting themselves under a cloud of suspicion, this is a danger we all run no matter what we do. Results are what really count. What we tried to show was that buying by advertising for bids might make a person appear to be honest, but doesn't always make him honest. It might take a little longer, but a thief can skin his particular cat just as well through advertising as he can through negotiation.

NEW ZINC I.D. TUBING RESISTS CORROSION— RETAINS OUTSTANDING STRENGTH, DUCTILITY AND *ECONOMY* OF STEEL!

You can now use economical steel tubing for applications formerly restricted to more expensive materials. Through an exclusive and inexpensive process, GM Steel Tubing makes available tubing that withstands corrosion and yet retains the important strength and economy of steel.

Outstanding new GM Steel Tubing with Zinc I.D. has a corrosion-resistant metallic coating which is non-porous, uniform in thickness and sufficiently ductile for manufacturing operations. The coating does not yield a volume build-up of corrosion deposits. The tubing is completely annealed and the coating entirely intact when delivered. Investigate the immediate savings possible with GM Steel Tubing with Zinc I.D. Write direct or call your GM Sales Engineer. And watch for important tubing advances of the future to take shape at GM Steel Tubing.

GM STEEL TUBING by ROCHESTER PRODUCTS

ROCHESTER PRODUCTS DIVISION OF GENERAL MOTORS, ROCHESTER, N. Y.

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For More Information Write No. 289 on Inquiry Card—Page 32

Stapling slashes costs, solves tough shipping and packaging problems for food industry

All industries have fastening problems, but they're especially critical in the food field. That's why you'll find Bostitch stapling so widely used by growers, packers and retailers.

Stapling's speed helps move perishables to market fast—for top prices. It cuts costs to safeguard profits. Staples are strong and sure. They withstand moisture and changes in temperature. 800 Bostitch staplers and 200 sizes and types of staples meet a wide range of fastening requirements.

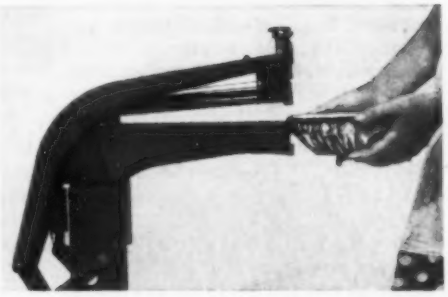
You may need a fastening method that offers these benefits. Chances are good that Bostitch stapling can help you. One of the 400 Bostitch Economy Men, who work out of 123 U.S. and Canadian cities, will gladly investigate. He's listed under "Bostitch" in your phone directory—or send us the coupon.

Stapling lettuce cartons in the field is 3 times faster than wire binding—quick adjust knob sets stapler for varying board thicknesses or bulging contents.

Leading meat packer finds stapling cartons 33⅓% faster than nailing wooden boxes. Increases production while cutting labor and material costs.

Stapling beats hand tying 2 to 1 sealing grapefruit bags at citrus grove. The special forked blade speeds fastening of mesh and cloth bag drawstrings.

50 pounds of refrigerated live lobsters go in this stapled corrugated container. Stapling provides a more secure seal when boxes get wet and is faster than tape formerly used.



Stapling covers to plates for frozen pies. Staples withstand extremes of cold and moisture—pies arrive in perfect condition.

Fasten it better and faster with

BOSTITCH®
STAPLERS AND STAPLES

Bostitch, 721 Briggs Drive, East Greenwich, Rhode Island

☐ Please send me information on stapling in the food field. I'm especially interested in stapling for_____

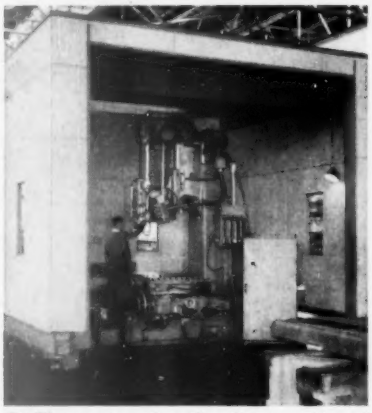
☐ Please send free bulletins on ways stapling cuts costs for other businesses.
I want to fasten: ☐ corrugated board ☐ cartons ☐ fabric ☐ leather ☐ plastic bags ☐ wood ☐ roofing ☐ rubber ☐ light metals

Name_____
Company_____
Address_____
City_____ Zone_____ State_____

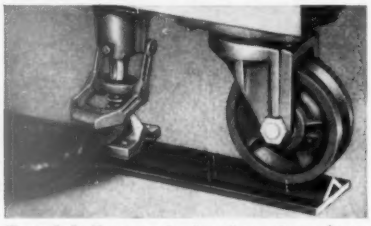
For More Information Write No. 290 on Inquiry Card—Page 32

materials-handling news

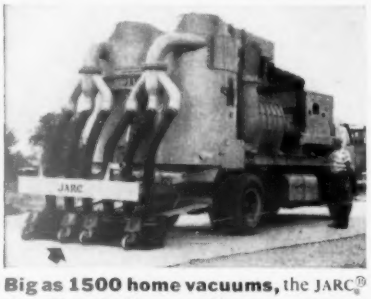
NEW AND UNUSUAL APPLICATIONS OF BASSICK CASTERS THAT MIGHT BE ADAPTED TO YOUR HANDLING PROBLEMS



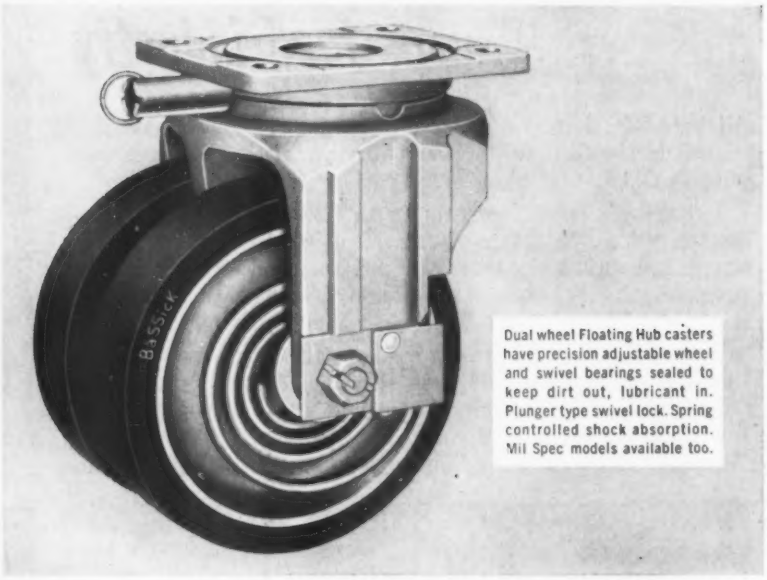
Rolling room steadies temperature! Pratt & Whitney Co., Inc. has built constant temperature rooms on Bassick heavy duty "Floating Hub" casters for use in final finishing and testing of machinery. These mobile rooms seal off the machine being worked on against temperature changes which could cause errors in the extremely fine tolerances.



Bassick Grooved wheel casters have wheels that fit them for use on inverted angle iron tracks. They increase efficiency, and give better control of handling. Installations are economical on production, shipping, receiving, assembly lines and the like.



Big as 1500 home vacuums, the JARC® (Jet Aircraft Runway Cleaner) sucks up sand, rocks or hardware which could damage jet engines. Makers, United States Hoffman Machinery Corp., use rubber-tired, spring-loaded "Floating Hubs" to carry nozzles.



Dual wheel Floating Hub casters have precision adjustable wheel and swivel bearings sealed to keep dirt out, lubricant in. Plunger type swivel lock. Spring controlled shock absorption. Mil Spec models available too.

McDonnell Aircraft uses casters to aid production two ways:

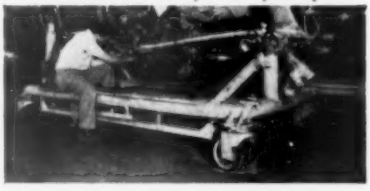
First—Materials-handling

Bassick dual wheel Floating Hub casters on the McDonnell Aircraft Corporation J-57 jet engine build-up stands carry 6,100 pounds. As stands are pulled by tractors, the shock-absorbing casters snub out vibration dangerous to delicate engines.

When assembled the engines are transferred to run-in stands, (15,000 pound pay loads) towed to testing areas on Bassick casters, test run, and returned to assembly area for installation or storage. Smaller aircraft parts such as landing gear, radar assemblies, end wings, and stabilizers are also moved on Bassick caster-equipped stands.

Second—Man-handling

Bassick caster-equipped work stands are used to assemble the F-101 "Voodoo" for the U.S. Air Force at McDonnell Aircraft. They practically surround the plane, put the men in the most convenient work locations. Bassick position locks hold stands steady. Could you adapt this man-handling idea to production or maintenance jobs in your plant?



YOUR DISTRIBUTOR CAN HELP YOU — CALL HIM

Your local Bassick Distributor can keep you up to date on the latest wrinkles in time-saving materials-handling techniques. And he can often recommend the best, most efficient Bassick caster for a specific job. Let his knowledge and experience help you.

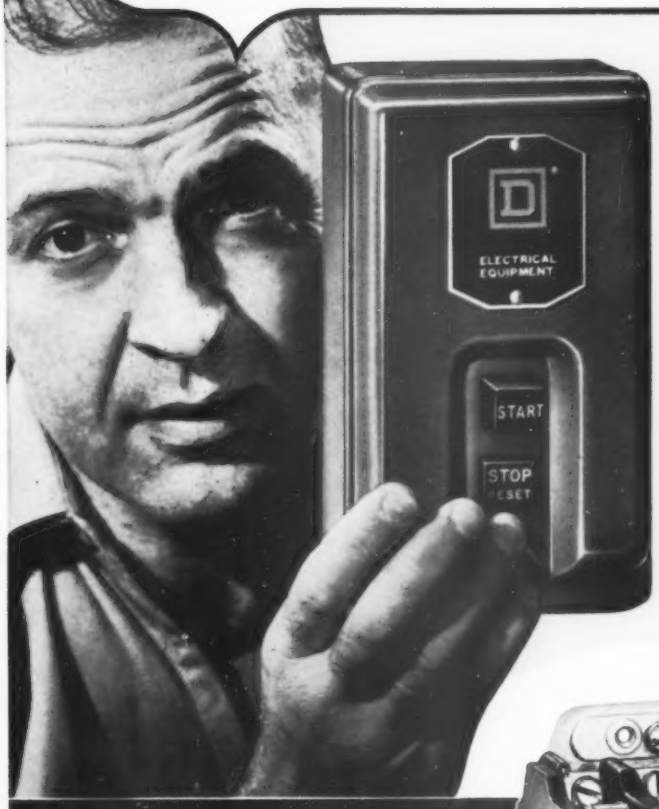
See our catalog in Sweet's or write for copy

Bassick SYMBOL OF EXCELLENCE — Stewart Warner

THE BASSICK COMPANY, Bridgeport 5, Conn. In Canada: Belleville, Ont.

For More Information Write No. 291 on Inquiry Card—Page 32

This NEW Manual Starter has EVERYTHING!



NEMA Sizes 0 and 1

Two, three and four-pole construction

SMALLER! Takes less space, whether it's built into machine or mounted externally

SMART STYLING! Matches the streamlined appearance of today's modern machines

QWIK-MAKE, QWIK-BREAK! Positive snap-action opening and closing of contacts. Longer contact life

TRIP-FREE OVERLOAD PROTECTION! Impossible for operator to hold motor circuit closed against overload

LONGER LIFE! *Toggle Action* operating mechanism. Heavy-duty construction throughout

EASIER INSTALLATION! Wire it without removing starter from enclosure. All terminals have pressure wire connectors

EASIER MAINTENANCE! "Off-the-Shelf" parts kits make normal maintenance and modifications easier than ever. They're easy to buy, easy to identify, and faster to install

TAMPER-PROOF! Cover padlocking device prevents tampering by unauthorized personnel. Safety latch locks "start" button in "OFF" position

VISIBLE INDICATION OF OVERLOAD! Self-centering push-buttons show when overload has occurred

CHOICE OF ENCLOSURES:

Water and Dust-Tight
Hazardous Locations
Flush Mounting

Write **for BULLETIN 2510 B-C**
Address Square D Company, 4041 North Richards Street, Milwaukee 12, Wisconsin

EC&M HEAVY INDUSTRY ELECTRICAL EQUIPMENT...NOW A PART OF THE SQUARE D LINE

SQUARE D COMPANY

For More Information Write No. 152 on Inquiry Card—Page 32

JENKINS

O.S.&Y. U-BOLT GATE

MADE BETTER THAN NEED BE . . .

Costs Less to Use

YOU PAY NO MORE for the extra quality you see in every part of a Jenkins Outside Screw & Yoke U-Bolt Gate valve. Yet longer life and reduced maintenance is bound to result from the extra ruggedness, the precision manufacture and unique design features which Jenkins puts into these popular, general utility valves.

Choose the Outside Screw & Yoke pattern for services where spindle threads must be kept out of the destructive effects of fluids in the line; where spindle threads must be cleaned and lubricated regularly or where a rising spindle is needed to indicate wedge position.

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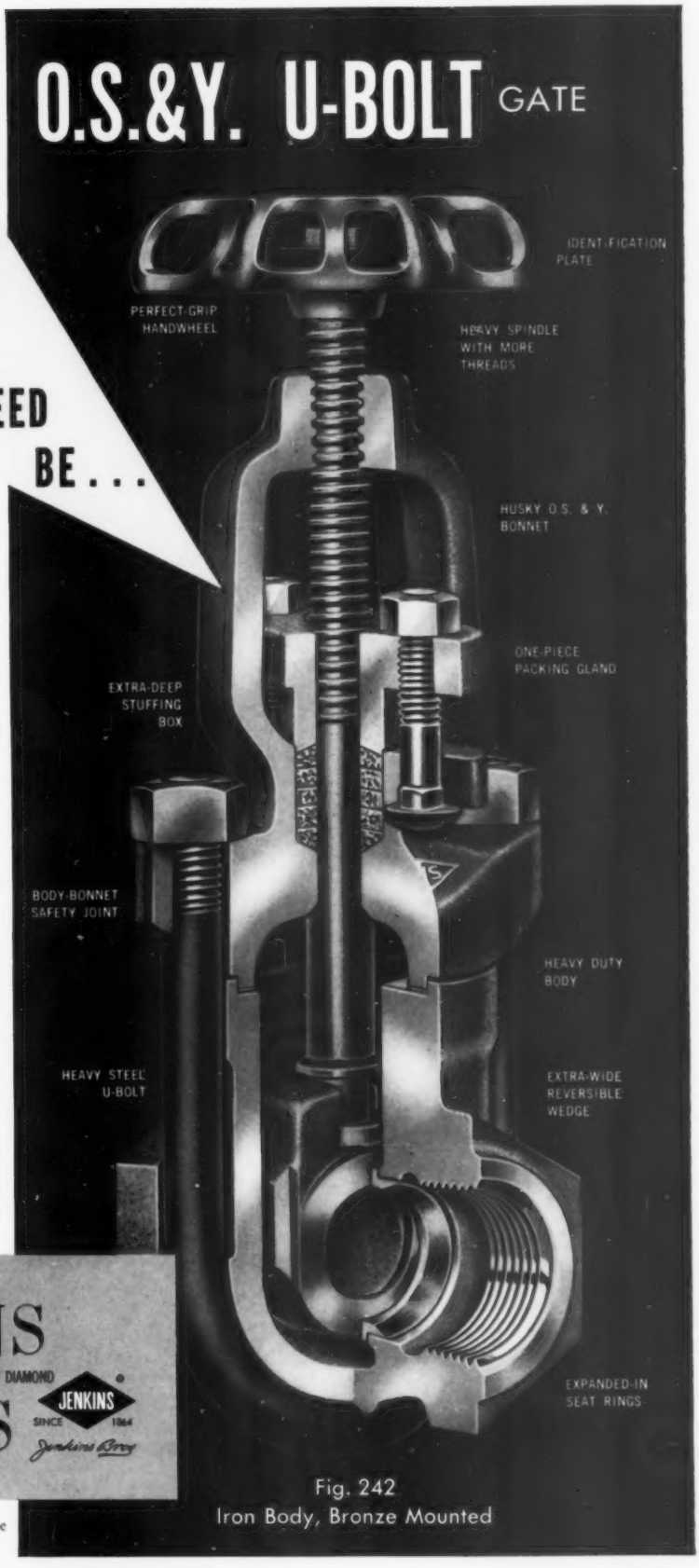

Fig. 242
Iron Body, Bronze Mounted

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